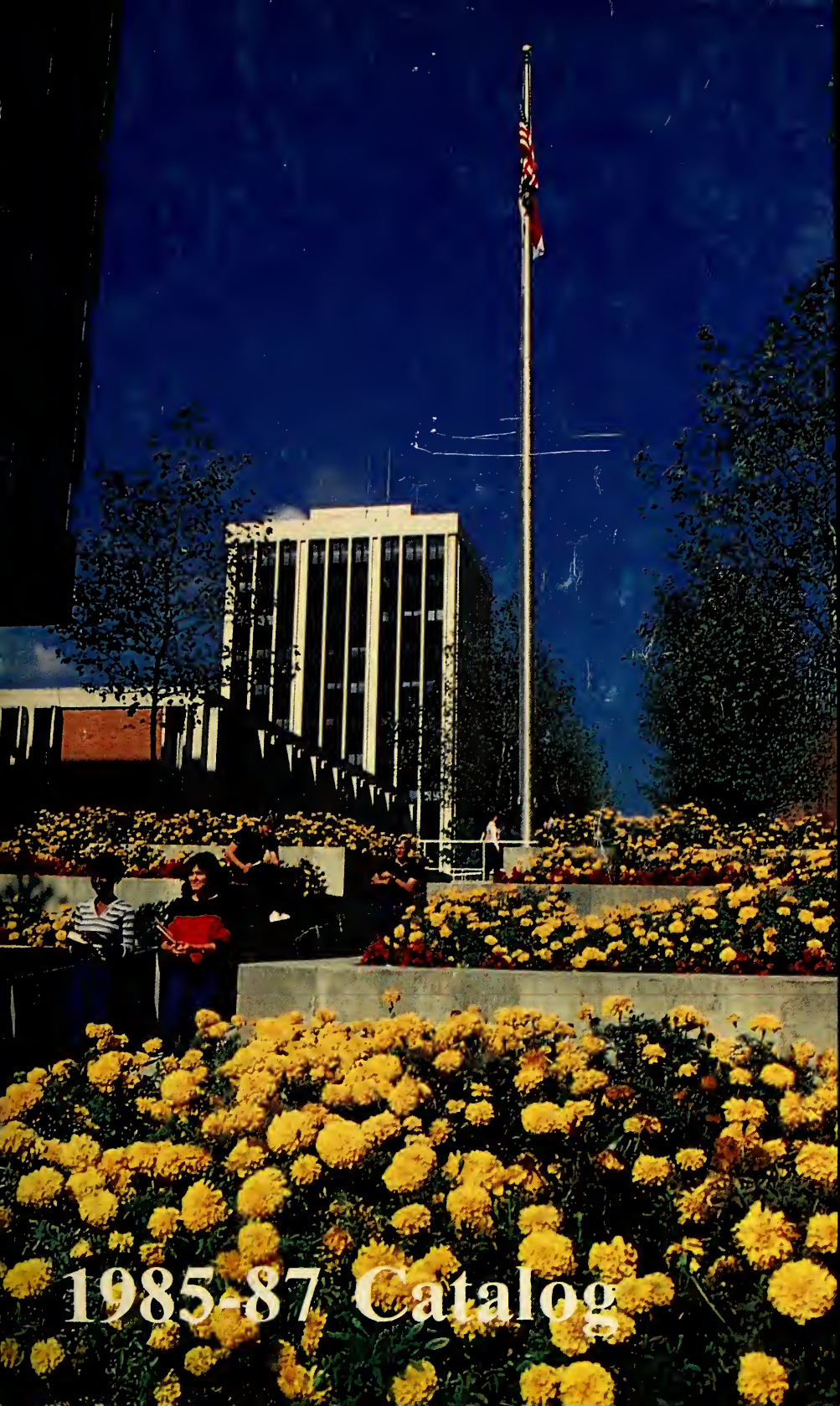

1985-87 Catalog

the university of north carolina at charlotte

Correspondence Directory

If, after reading this catalog, you have further questions, or wish to make specific inquiries about the programs of, or admission to, the University of North Carolina at Charlotte, please look below to find the proper office to contact. Address correspondence to any of the offices in care of:

The University of North Carolina at Charlotte
Charlotte, North Carolina 28223

UNDERGRADUATE AND GRADUATE ADMISSION

If you need information on admissions policies, application forms, or wish to make an appointment for an interview, please contact the:

Office of Admissions
AC 704/597-2211*

STUDENT FINANCIAL AID

If you need information on scholarships, work study grants or loans, please contact:

Director of Student Financial Aid
AC 704/597-2461*

CAMPUS HOUSING

If you have questions concerning housing on campus, please contact:

Director of Residence Life
AC 704/597-2585*

SUMMER SESSION

If you need information about summer course offerings, please contact:

Office of Admissions
AC 704/597-2211*

EVENING COURSES

If you need information about evening course offerings, please contact:

Registrar's Office
AC 704/597-2287*

CONTINUING EDUCATION

If you need information about continuing education and extension course offerings, please contact:

Director of Continuing Education
AC 704/597-2424*

EMERGENCY NUMBERS

Campus Police — Emergency 597-2200*
Director of Public Safety & Non-Emergency Calls 597-2282*
Safety 597-4291*
Handicapped Services 597-4291*
Health Services (radio contact with police) 597-4617*
Campus Operator 597-2000*
Mecklenburg County Police — Emergency 9-911

Note: After July 1, 1986, the prefix for all UNCC telephone numbers will be 547.

The University of North Carolina at Charlotte

Undergraduate & Graduate Catalog 1985-87 Vol. XX, No. 1

Published by the Office of Academic Affairs and the Office of Information and Publications, 6/85

Photographer: Susan Morgan Jones

The University of North Carolina at Charlotte is committed to equality of educational opportunity and does not discriminate against applicants, students or employees based on race, color, national origin, religion, sex, age or handicap. Moreover, the University of North Carolina at Charlotte is open to people of all races and actively seeks to promote racial integration by recruiting and enrolling a larger number of black students.

50,000 copies of this public document were printed at a cost of $37,500, or $.75 per copy.

About This Catalog...

Although the publisher of this catalog has made every reasonable effort to attain factual accuracy herein, no responsibility is assumed for editorial, clerical, or printing errors or errors occasioned by mistakes. The publisher has attempted to present information which, at the time of preparation for printing, most accurately describes the course offerings, faculty listings, policies, procedures, regulations, and requirements of the University. However, it does not establish contractual relationships. The University reserves the right to alter or change any statement contained herein without prior notice.

Table of Contents

Academic Calendar 4
The University 8
Admission To The University 29
Financial Information 46
Academic Regulations and Degree Requirements 59
Courses of Study and Special Programs 77
- Courses of Study 78
- College of Architecture 79
- College of Arts and Sciences 85
  - Afro-American and African Studies 86
  - American Studies 90
  - Department of Biology 92
  - Department of Chemistry 102
  - Department of Criminal Justice 110
  - Department of English 115
  - Department of Foreign Languages 124
  - Department of Geography and Earth Sciences 133
  - Department of History 141
  - Department of Mathematics 149
  - Department of Performing Arts 162
  - Department of Philosophy 173
  - Department of Physics 176
  - Department of Political Science 179
  - Department of Psychology 187
  - Department of Religious Studies 196
  - Department of Sociology and Anthropology 199
  - Speech 211
  - Department of Visual Arts 212
  - Women's Studies 219
- College of Business Administration 220
  - Department of Accounting 224
  - Department of Business Administration 228
  - Department of Economics 235
- College of Education and Allied Professions 242
  - Department of Curriculum and Instruction 245
  - Department of Educational Administration 260
  - Department of Health and Physical Education 264
  - Department of Human Services 269
  - Air Force Aerospace Studies Area (Air Force ROTC) 276
  - Military Science Area (Army ROTC) 279
- College of Engineering 281
  - Department of Civil Engineering 287
  - Department of Electrical Engineering 293
  - Department of Mechanical Engineering and Engineering Science 302
  - Department of Engineering Technology 310
  - Department of Computer Science 328
- College of Nursing 334
- Special Programs 344
  - Afro-American and African Studies 344
  - American Studies 344
  - Charlotte Area Educational Consortium 344
  - English Language Training Institute 344
  - Exchange Programs 344
  - Cooperative Education and Experiential Learning Programs 345
  - Honors Program 346
  - Inter-Institutional Registration 349
  - International Studies 350
  - ROTC Programs 351
  - Venture Program 352
  - Women's Studies 352
  - Preparation for Professional Schools 352

Benefactions 357
University Regulation of Student Conduct 361
Directory 365
Index 403

Academic Calendar 1985-86

Dates pertaining to changes in enrollment and refunds are included in the calendars which appear in the Schedule of Courses published each semester. These dates and the detailed calendar for the three, five and eight-week terms of the summer sessions are published during March.

FALL SEMESTER, 1985

Academic year begins ..... Sunday, August 18
Orientation, advising, registration ..... Monday-Tuesday, August 26-27
First class day ..... Wednesday, August 28
Labor Day (no classes) ..... Monday, September 2
Fall recess (no classes) ..... Monday-Tuesday, October 14-15
Thanksgiving recess (no classes) ..... Wednesday-Friday, November 27-29
Last class day ..... Friday, December 13
Final examinations ..... Monday-Saturday, December 16-21

SPRING SEMESTER, 1986

Orientation, advising, registration ..... Monday-Tuesday, January 13-14
First class day ..... Wednesday, January 15
Spring recess (no classes) ..... Monday-Friday, March 17-21
Last class day ..... Friday, May 2
Final examinations ..... Monday-Saturday, May 5-10
Commencement ..... Saturday, May 17
Academic year ends ..... Saturday, May 17

FIRST SUMMER TERM, 1986

Registration ..... Monday, May 26
First class day ..... Tuesday, May 27
Last class day ..... Monday, June 30
Final examinations ..... Tuesday-Wednesday, July 1-2

SECOND SUMMER TERM, 1986

Registration ..... Monday, July 7
First class day ..... Tuesday, July 8
Last class day ..... Monday, August 11
Final examinations ..... Tuesday-Wednesday, August 12-13

Academic Calendar 1986-87

Dates pertaining to changes in enrollment and refunds are included in the calendars which appear in the Schedule of Courses published each semester. These dates and the detailed calendar for the three, five and eight-week terms of the summer sessions are published during March.

FALL SEMESTER, 1986

Academic year begins ..... Sunday, August 17
Orientation, advising, registration ..... Monday-Tuesday, August 25-26
First class day ..... Wednesday, August 27
Labor Day (no classes) ..... Monday, September 1
Fall recess (no classes) ..... Monday-Tuesday, October 13-14
Thanksgiving recess (no classes) ..... Wednesday-Friday, November 26-28
Last class day ..... Friday, December 12
Final examinations ..... Monday-Saturday, December 15-20

SPRING SEMESTER, 1987

Orientation, advising, registration ..... Monday-Tuesday, January 12-13
First class day ..... Wednesday, January 14
Spring recess (no classes) ..... Monday-Friday, March 16-20
Last class day ..... Friday, May 1
Final examinations ..... Monday-Saturday, May 4-9
Commencement ..... Saturday, May 16
Academic year ends ..... Saturday, May 16

FIRST SUMMER TERM, 1987

Registration ..... Monday, May 25
First class day ..... Tuesday, May 26
Last class day ..... Monday, June 29
Final examinations ..... Tuesday-Wednesday, June 30-July 1

SECOND SUMMER TERM, 1987

Registration ..... Monday, July 7
First class day ..... Tuesday, July 8
Last class day ..... Tuesday, August 11
Final examinations ..... Wednesday-Thursday, August 12-13

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The University

The University

GENERAL INFORMATION

The University of North Carolina at Charlotte is an established and growing institution providing the excitement and opportunities of a modern metropolitan university. Enrollment has reached more than 10,000 and is expected to continue a modest and steady growth because of its dynamic setting in a metropolitan region of one million population.

UNCC provides a wide range of four-year degree programs and an increasing number of master's degrees and sixth-year programs designed to serve the educational needs of the citizens of North Carolina.

The University's enhanced reputation for high-quality teaching by regular faculty in classes of moderate size is bringing increasing numbers of students from across the state, from other states and from foreign countries. With a large concentration of foreign students, UNCC has one of the most active international studies programs in the country for an institution of its size.

A wide variety of lifelong learning opportunities is offered through UNCC's Continuing Education and Extension Office. Moreover, The University is dedicated to serving the urban community through its Urban Institute. Its relationship to the electronics and other firms in the adjoining University Research Park is a mutually beneficial arrangement and it is one of two participating universities comprising the Microelectronics Center of North Carolina (MCNC). WFAE-FM, a National Public Radio affiliate, provides further outreach to the community.

Despite its metropolitan setting, the campus covers approximately 1,000 acres of rolling hills with forests, streams and ponds. Contemporary buildings of unique design and landscaping are clustered at the central campus which is easily accessible from major interstates and other highways. The setting is enhanced by a planned community, University Place, University Research Park and University Memorial Hospital, adjacent to the campus.

The University was created by the 1965 North Carolina General Assembly, which transformed Charlotte College into a campus of the University of North Carolina. Now one of the 16 campuses of the University system, UNCC can trace its lineage to 1946 and the Charlotte Center of the University of North Carolina.

A team comprised of the chancellor, five vice chancellors and six deans gives leadership to the University and its six colleges — Architecture, Arts and Sciences, Business Administration, Engineering, Education and Allied Professions, and Nursing.

PURPOSE STATEMENT

The University of North Carolina at Charlotte is the distinctively urban-oriented university of the state. It provides instructional, research and public service programs primarily to meet the educational needs of the citizens of North Carolina, and welcomes participation by scholars and students from other states and nations. As a comprehensive university, it is committed to a balanced curriculum in the liberal arts and sciences and selected professions. The University meets its responsibilities through campus programs and collaborative relationships with the human service, cultural, corporate, and governmental resources of the region.

The University offers baccalaureate, master's and post-master's programs in the humanities, social and behavioral sciences, physical and biological sciences and the professions of architecture, business administration, education, engineering and nursing. The primary commitment of The University is to informed and effective teaching. All faculties emphasize undergraduate instruction as the foundation upon which life-long learning and advanced education are based and extend educational services by offering programs in the evening hours and at off-campus sites. Among the graduate and professional programs offered, those which serve the population of the metropolitan region are given special emphasis.

The distinctive responsibilities of The University influence the nature of the research and the types of scholarly endeavor and public service activity undertaken by its faculty members. Both basic and applied research and scholarship are valued and encouraged. Leadership in public service is provided through campus-based programs, consultation services, and participation in the programs of regional, national and international organizations.

The University is committed to excellence in its teaching, research and public service programs and the relationships which support and are supported by them. The policies and practices of The University are designed to promote in each of its members:

- attitudes and opportunities for creative, critical and independent injury;
- freedom from the limitations of ignorance, prejudice and intolerance;
- self knowledge and an understanding of the relationships of the individual to society; and
- understanding of cultures and circumstances which differ from the familiar in location, time or values.

GOALS STATEMENT

The University of North Carolina at Charlotte has as its strategic goal to be known as a comprehensive institution of higher learning:

- offering top quality instructional programs at the undergraduate and graduate levels;
- whose faculty is well qualified, student-oriented and is active in professional and scholarly endeavors and is supported by excellent campus facilities together with the intellectual and cultural resources of the State and region;
- which emphasizes individual intellectual development and career preparation to assist all its members to meet the needs of an increasingly technical, urban and international society;
- for students well prepared for University work through secondary school preparation or prior collegiate study and career experience.

To progress toward this strategic goal, The University sets as its primary goals for the period 1985-86 through 1989-90 the following:

1. To strengthen the instructional systems of the University;
2. To support efforts by the faculty of The University to improve the quality and effectiveness of their work;
3. To support student efforts to educate themselves;
4. To strengthen existing and to develop new relations with other educational, cultural, industrial-commercial, health and social service institutions of the Charlotte/Mecklenburg region and of the State of North Carolina; and
5. To strengthen the full range of liberal arts and professional disciplines of The University and to extend the applied social and natural science programs.

GOALS OF UNCC EDUCATION

Graduates of The University of North Carolina at Charlotte should be self-motivated individuals who are able to form, articulate, and act upon reasoned decisions in their personal, civic, and professional lives. To this end they should (a) have a broad knowledge base as well as a more specialized knowledge base in their chosen area, (b) possess skills and capacities that can be applied to a variety of situations and professions in an ever-changing world, (c) understand the complexities and interrelationships between humans and their environment, and (d) possess a realistic understanding of their own potentials, limitations, and mental/physical development. All UNCC graduates should possess a general understanding of and appreciation for science and technology; literature and the arts; the individual, society, and culture; and the interrelationships among these.

In order to meet those goals of UNCC education, students engage in programs designed to develop understandings, skills, and capacities in the following six interrelated major areas:

I. Communication
II. Problem Solving
III. Understanding Values
IV. Understanding Science and Technology
V. Understanding the Arts, Literature and Ideas
VI. Understanding the Individual, Society and Culture

ACCREDITATION

UNCC is fully accredited as a total institution by the Southern Association of Colleges and Schools and is a member of the North Carolina Association of Colleges and Universities. Various programs within the University are accredited by the appropriate specialized accrediting agencies. The College of Architecture is accredited by the National Architectural Accrediting Board. The programs in business are accredited by the American Assembly of Collegiate Schools of Business. The University's program for teacher education is approved for teacher certification by the North Carolina State Department of Public Instruction and is accredited by the National Council for Accreditation of Teacher Education. Programs within the College of Engineering are accredited by the Accreditation Board for Engineering and Technology. The Nursing program is accredited by the National League for Nursing and approved by the North Carolina Board of Nursing. The Department of Chemistry is on the approved list of the American Chemical Society.

The University is a member of the Council of Graduate Schools in the United States and the Conference of Southern Graduate Schools.

ACADEMIC STRUCTURE

UNCC is organized into five administrative divisions: Academic Affairs, Business Affairs, Development, Research and Public Service, and Student Affairs. The Division of Academic Affairs includes the Library, Computing Services, Offices of Admissions and Records, the Graduate School and six colleges, the Colleges of Architecture, Arts and Sciences, Business Administration, Engineering, Education and Allied Professions, and Nursing. The colleges offer more than 40 undergraduate and 20 master's degree options and sixth-year Certificate of Advanced Study programs through the departments and programs listed by college in the "Courses of Study and Special Programs" section of this catalog. Many of the departments throughout the University are involved in teacher education. The College of Education and Allied Professions, advised by the University Teacher Education Committee, is responsible for these programs.

EVENING COURSES

The University schedules its course offerings from 8 a.m. through 10:30 p.m. Monday through Thursday and 8 a.m. through 5 p.m. on Friday. A well rounded selection of courses is available in the evening. A substantial majority of courses approved for graduate credit are taught in the evening. Information about evening course offerings may be obtained from the Registrar's Office (AC 704/597-2287).

SUMMER COURSES

UNCC schedules a variety of course offerings during its Summer Sessions which are held each year beginning in May and ending in mid-August. These courses are scheduled in two five-week terms and overlapping three and eight-week terms. Regular course offerings are supplemented by short-term courses, institutes and workshops. Continuing students, visitors or students from the community should find their needs answered by offerings from many disciplines. Information about summer courses may be obtained from the Office of Academic Affairs (AC 704/597-2225).

PRIVACY OF STUDENT EDUCATIONAL RECORDS

Federal law (the "Buckley Amendment") creates for students the following rights with respect to their education records:

1. To inspect and review information contained in records.
2. To challenge the content of the records.
3. To a hearing if the outcome of the challenge is unsatisfactory to the student.
4. To submit an explanatory statement for inclusion in the record if the outcome of the hearing is unsatisfactory.
5. To prevent disclosure, with certain exceptions, of personally identifiable information.
6. To secure a copy of the UNCC policy on education records, which lists the locations of all education records maintained by The University.

7. To file complaints with the U.S. Department of Education concerning alleged failures by the institution to comply with the Buckley Amendment.

UNCC intends to comply fully with those requirements. Policy Statement No. 69, "The Privacy of Educational Records," explains the procedures for compliance. Students may obtain copies of the policy in the Office of the Registrar, and copies of the Policy Statement are available for inspection in the offices of each dean and department chairperson. The policy includes a list of the locations of all education records maintained by the institution.

The following categories of personally identifiable information about students have been designated as public or "directory" information which may be disclosed for any purpose without student consent: name, local and permanent address, telephone number, date and place of birth, major field of study, dates of attendance, degrees and awards (including scholarships) received, participation in officially recognized activities and sports, and weight and height of members of an athletic team.

Currently enrolled students may withhold disclosure of information in any category by completing the appropriate form available in the Office of the Registrar. Written requests for nondisclosure will be honored for a maximum of one year, and all such requests will expire on the following August 31.

UNCC assumes that failure to complete the request indicates approval for disclosure.

All questions concerning this UNCC policy on educational records may be directed to the attention of the Dean of Admissions and Records.

EQUAL OPPORTUNITY

The University of North Carolina at Charlotte is dedicated to equality of opportunity within the University community. Discrimination based on sex, race, color, national origin, religion, age, or handicapped status is not condoned and shall not be practiced against students, employees or applicants.

Further, the University of North Carolina at Charlotte supports the protections available to members of the University community under all applicable federal laws, including Title VI and VII of the Civil Rights Act, Title IX of the Educational Amendments, Sections 799A and 845 of the Public Health Service Act, the Equal Pay and Age Discrimination Acts, the Rehabilitation Act of 1973, and Executive Order 11246.

The University has a published Affirmative Action Plan. It has completed a self-evaluation of current policies and procedures to insure compliance with the requirements of Title IX of the Educational Amendments of 1972 and it has completed the compliance report required by Section 504 of the Rehabilitation Act of 1973. Copies of these documents have been placed on reserve in the UNCC library.

Both informal and formal grievance procedures have been established for use by any member of the University community who feels discrimination by any segment of The University.

Facilities and Services

ACADEMIC AFFAIRS

The J. Murrey Atkins Library is located near the center of the campus of The University of North Carolina at Charlotte. The library houses an open-shelf collection which includes over 360,000 bound volumes, 675,000 units in microform and approximately 131,000 manuscripts in closed stacks. The Library of Congress classification system is used for the arrangement of books and periodicals. Sound recordings, audio-visual media, college catalogs and education curriculum materials complement the library's print collections.

Atkins Library meets the informational needs of the University community by offering a variety of services. A staff of 65 people, including 19 librarians, acquires, organizes and services the collections. Reference librarians provide assistance to students in the use of library materials and help students develop research skills through various bibliographic instruction programs. Computer searches and interlibrary loan are among the services available to the University community.

A number of special collections are available to the University community. A selective depository of U.S. publications since 1964, the library has over 337,000 federal government documents. The North Carolina documents collection, begun in 1976, is a rapidly growing collection of publications of state government agencies. In 1984 the library was designated a depository for City of Charlotte and Mecklenburg County publications. The Local Public Documents Room Collection for the McGuire Nuclear Plant on Lake Norman is located in the library. The library is also a depository of U.S. Geological Survey and Defense Mapping Agency maps. The collection consists of over 20,000 maps.

The Mary and Harry L. Dalton Rare Book and Manuscript Reading Room houses the library's collections of rare books, official University records, manuscripts and oral history tapes. The Rare Book Collection, numbering some 3,688 volumes, contains literary first editions, historical children's books, early printed works, fine press books, and a large number of 17th and 18th century English plays. The University Archives includes administrative files, theses, photographs and other material relating to the history of the University. The Non-University Archives contains almost 100 collections, including the papers of Harry Golden, Carl Sandburg and several past mayors of Charlotte. An Oral History Program, also administered by the library, has conducted interviews with a number of distinguished local citizens. Tapes and transcripts of these interviews are available for use by the library's clientele.

In addition to materials directly related to classroom and research work, the library provides students with general and recreational reading materials. Exhibits and displays presenting ideas and issues are also a regular part of the library's service program. Dispersed throughout the library is an excellent art collection which includes sculpture, oils, lithographs, watercolors and etchings.

The Friends of UNCC and individual donors have played a significant role in developing and contributing to the growth of the library's collections.

Media Services, administered by the library, is located in Atkins 200. It offers a wide range of audio and visual services for both students and faculty engaged in University functions. The production staff is capable of producing color slides, overhead transparencies, black and white photographs, audio and video recordings and multi-media programs.

Media Services loans audio-visual equipment for short-term use to students and faculty. Equipment includes motion picture projectors, slides and filmstrip projectors, overhead and opaque projectors, audio and video recorders, public address systems, record players, and projector screens. There is a satellite equipment distribution center located in Denny 214. An audio studio and small television studio are available for use. The unit also manages a highly sophisticated teleconference and teleclassroom facility in conjunction with the Microelectronics Center of North Carolina. Professional assistance is available on request. The Library's collection of 16mm films is located in Media Services. The unit also manages the film preview program and handles requests for loans from the State's film lending service. The staff offers a wide variety of workshops on television production, slide duplication, dry mounting, laminating, thermal and diazo transparency production, projector operation, audio and video tape recording and instructional development.

Computing Services, located on the ground floor of the Atkins Library Annex Building, supports the University's efforts towards "computer literacy" and provides administrative computing in the operation of The University.

Academic computing includes course programs at the undergraduate and graduate levels in the use of various computer languages and computing techniques as well as research at the graduate level involving the use of an extensive software library. Computing laboratories located in several campus buildings provide terminal access to the University's mainframe (Burroughs A9), superminicomputers (VAX-11/780, VAX-11/750 and Harris H800), and minicomputers (PDP-11's and B1955). Terminal access to the Triangle Universities Computation Center (TUCC) IBM 3081 and attached FPS-164 provides additional computing capacity, software and data bases. The use of microcomputers in support of instruction and research is encouraged through several laboratories utilizing Apple and IBM Personal Computers.

Use of the computer is widespread at UNCC. Examples include the study of programming languages and the use of data bases in computer science, computer aided engineering and graphics in engineering, statistical analysis of data files in sociology, history, political science and psychology, transportation problem solving in geography and molecular analysis in chemistry.

Learning Assistance Services provides free academic support services available to all UNCC students, faculty and staff. Located in Atkins 32, the office is open Monday-Friday from 8 a.m to 5 p.m. These facilities provide aids to remove any obstacles to academic success through the following programs and services:

•Diagnostic testing in the areas of reading comprehension and vocabulary, reasoning and thinking ability, study skills and learning style, with consultation concerning ways to work on skill improvement.

•A large, well-equipped learning lab containing resources and materials related to learning skill development in such areas as time management, vocabulary development, comprehension in the various subject areas, critical thinking and problem-solving, listening and notetaking, concentration and memory, test-taking and/or graduate admissions test preparation.

•Free, non-credit groups and mini-courses on a variety of study skill topics.

•Peer tutors for many courses in chemistry, biology, physics, engineering, math, computer science, foreign languages and other areas as needed.

•Aid in reading, writing, taping of textbooks, special test administration, counseling and other individual support services for students who have a learning disability or a physical handicap.

•Special assistance for reentering students and international students through scheduled groups and individual appointments.

•Materials containing "mini-lessons" on the various study/learning skills.

In addition, Learning Assistance Services staff members teach the Learning Skills Instruction course (EDU 1140) offered by the College of Education and Allied Professions.

Writing Resources Center (WRC) is a service provided by the English Department to help members of the University community improve their writing skills. The WRC is staffed by tutors drawn largely from upper-division and graduate level English courses who are prepared to assist writers to define, develop and express their ideas. In addition, a collection of materials is available to assist students in the development of their writing skills. The WRC is located in Winningham 216 and services are provided from 9:00 - 4:00, Monday through Thursday and from 9:00 - 1:00 on Friday.

The Chimney Rock Park Field Station is located in the Blue Ridge Mountains, 30 miles southeast of Asheville. The University has an agreement with Chimney Rock Park to investigate the biological, geological and cultural features of the 800-acre park. Area available for study extends from the Broad River at the bottom of Hickory Nut Gorge to the top, a vertical climb of over 1,500 feet. Internships for research-park employment are available through the Scientific Advisory Board in care of the Department of Biology.

The UNCC Experimental Ecological Reserve is a 100-acre tract of land set aside on campus by the UNCC Board of Trustees as a permanent ecological reserve for use as an outdoor classroom and laboratory. The reserve includes an eight-acre old field, pine stands, mixed pine-hardwood forest, and a relatively undisturbed 10-acre watershed of oak-hickory forest.

STUDENT AFFAIRS

Cone University Center serves as the hub of activity for informal gatherings and social and educatonal activities on campus and provides an attractive comfortable place for relaxation and study. Students spend free time meeting with friends in the music listening lounge or gameroom, browsing in the art gallery, or satisfying a sweet tooth at the Candy Shoppe. The Student Activities Center, cafeteria, large auditorium and meeting rooms are available for dining, meetings, movies, concerts, lectures and other activities.

Also located within the center are the offices of the Student Body Government, 49er Times, WFAE radio station, Sanskrit, Prospector, Black Student Union, University Program Board, Student Financial Services, Caucus (clubs and organizations, Venture program, Campus Programs, student activity fees treasurer and Extra-Versity program), and the administrative offices for the University Center.

Services and facilities available are the Student Activities Center, gameroom and outdoor equipment rental, information desk and music listening lounge, travel center, the Candy Shoppe, concert and discount movie tickets center, meeting rooms and facilities for dances, lectures, concerts, films and banquets.

The Rathskeller is located beneath the Residence Hall Cafeteria. Within it is a snack bar which serves pizza, sandwiches made to order, hot dogs, hamburgers and ice cream. The UPB Entertainment Committee offers a wide variety of entertainment including name musical acts, novelty acts, movies, and TV viewing.

University residence halls, suites and apartments offer students an experience filled with opportunity. Four high-rise halls house approximately 500 students each. Each room includes study and sleeping areas for two students and is equipped with built-in dressers, study desks, chairs and closets. Each floor has a central lounge plus study, typing and seminar rooms. Two elevators services each air-conditioned building. Each building also contains an office for the full-time professional staff (residence coordinator), student mail boxes, a concessions area, a lounge and a laundry room. A meal plan is required with high-rise residence.

UNCC's suite housing offers the same potential for growth as the high-rise halls but, in addition, provide more privacy. Two students share a double room and four students share a bath and a den area. This lifestyle also requires participation in a meal plan.

On-campus apartments offer an alternative to group living without the disadvantages and expense of commuting. They offer students a more private living environment and require a more self-reliant lifestyle. Each apartment is a four-bedroom unit, with one student assigned to each bedroom. The four students share a bathroom area and kitchen complete with cooking facilities and living/dining space. The apartments are designed to be as like the "outside world" as possible. A meal plan is optional, allowing students the experience of buying and preparing their own food, if they so desire. *(Note: Freshmen are not eligible for the apartment lifestyle).*

The University does not require students to live on campus. A student who plans to live on campus should apply as soon as possible as assignments are made based on date of receipt of contract. An application for housing will be sent to the entering student at the time of his or her final admission to the University. A $100 deposit must be returned with the application to the Director of Residence Life.

Housing facilities designed specifically for handicapped students in wheelchairs are available. Wheelchair students who receive residence hall space confirmation have priority in assignment to these facilities *as long as the University is able to offer space.* It is extremely important that the housing application is received before all space is committed so that this priority for assignment to handicapped facilities can be exercised. Wheelchair students may be considered for priority status on the waiting list on the basis of (1) the date of application and (2) the degree of utilization of wheelchair-equipped facilities as compared to the proportion of wheelchair students who apply.

The University does not assume any responsibility for the provision of attendants. Such arrangements are entirely the responsibility of the individual student and should be established well in advance of the time such services are to begin.

The Counseling Center provides services and programs to assist in individual and group growth, career development and personal adjustment problems. Staffed by professionally trained psychologists and counselors, the Counseling Center offers services to students, faculty and staff without cost. Initial counseling appointments may be arranged in Room 06 of the Atkins Building or by calling 597-2104. Information between an individual and his/her counselor is confidential in accordance with State guidelines. No information is released without a person's written permission, and no information is entered into a student's permanent college record.

The aim of the Counseling Center is to assist the individual in resolving current problems and to help the person gain self-understanding that promotes personal growth. The counseling process is individualized for each person to meet his/her particular needs and may include a variety of services such as personal counseling, career development, group counseling and/or testing. Individual counseling is provided to help a person develop better coping strategies, resolve conflict and handle crisis situations. Career counseling assists the person in exploring interests, work values and abilities through individual counseling sessions, career exploration groups and utilization of the career information library. Each semester, groups are offered which are designed to teach a skill or are focused on a particular theme. Examples include assertion training, stress management and personal growth. The administration of career interest inventories, personality surveys and achievement tests provides an additional method of self-exploration for students. Tests are selected only after a careful discussion between the individual and the counselor and are available at no cost.

Outreach and consultation are vital functions of the Counseling Center. Staff members are available to consult with UNCC faculty, staff and student organizations on topics such as enhancing communication, improving the learning environment and helping the problem student. Outreach activities include programs conducted outside the Counseling Center to meet the need of a group or organization. These programs usually focus on personal development, career development and educational skills training.

The Placement Office (located in Room 132, King Building) functions as the central placement agency for the campus and serves undergraduates, graduate students and alumni by assisting them in developing their career objectives (preferably beginning with their admission to the University) and in obtaining employment. Services include career planning and guidance; advising on the techniques of employment prospecting, on job selection and analysis, on interviewing, on the preparation of resumes and writing of business letters; maintaining, for student browsing, files of information on prospective employers (business firms, governmental agencies, school systems) and on graduate school fellowships and assistantships; providing liaison between employers or graduate schools and UNCC degree candidates through on-campus recruiting by employers and graduate school representatives and by individual referral of prospective UNCC graduates and alumni to current employment openings.

Students who wish to earn part of their educational expenses or to gain work experience may register for part-time, full-time or summer employment off campus. Every effort is made to assist the student who expresses a need for employment and, where possible, to place the student in a position relating to his/her vocational goal.

Degree candidates register with the Placement Office on a voluntary basis early in their graduating year by completing a data sheet and requesting three professors and/or employers to complete evaluations on forms provided by the Placement Office. At the present time, these credentials are retained on a permanent basis.

The Family Educational Rights and Privacy Act of 1974 provides that the release of placement credentials or information in the file must be authorized in writing by the registrant unless the information is a matter of public record, and that under certain conditions each student may have the right to review his/her placement file (data sheet and evaluations) and to obtain a copy of it for a fee.

All employers and schools interviewing on campus or listing openings with the Placement Office must indicate that they are equal opportunity employers, that is, that in hiring, compensation, promotion, training or admission they do not discriminate on the basis of race, color, religion, sex, age, national origin or handicap.

The Brocker Health Center provides comprehensive out-patient medical care to all students with facilities for laboratory and X-ray studies, hearing and vision testing, allergy injections and injury rehabilitation. Specialty clinics for birth control, sports medicine, orthopedics and internal medicine are also available.

The Health Center is fully operational between the hours of 8:00 a.m. and 5:00 p.m. with physicians and support staff on duty Monday through Friday. During the evening hours, registered nurses are available for assistance and referral. The Health Center is closed during all official University holidays and at night.

Seriously ill students and emergencies will be referred to the University Memorial Hospital or other appropriate in-care facility. Students and parents are urged to review their insurance plans to be sure they have adequate coverage for confinement or emergency treatment at these facilities. Insurance is available through the University with a plan designed for students. Information about this plan is sent to all students during the summer.

Students coming to the Health Center must bring a current University Identification card.

Intramural sports are offered in a comprehensive program to provide enjoyable recreational opportunities for the student body. The program includes team, dual and individual sports for both men and women, corecreational activities and ample opportunities for unstructured "free play" activities. The gymnasium is open for student use throughout the week, at night and on weekends.

Designed primarily for the participant, the gymnasium features six indoor basketball courts, an Olympic-size swimming pool, handball and squash courts, weight and wrestling rooms, a well equipped training room and lockers for 6,000 students and faculty. It will seat 3,200 spectators for basketball and other intercollegiate activities. In addition, the gym houses classrooms and an auditorium for audiovisual presentations.

BUSINESS AFFAIRS

The Department of Public Safety, located on the first floor of King Building, is divided into three areas — Police, Traffic and Safety — and is also responsible for the University Lost and Found Department.

Police Services to the University community are provided 24 hours a day, seven days a week. Campus police officers are commissioned by the Attorney General of North Carolina and have full police powers on campus. Ninety percent of these officers are or have been students, either at UNCC or other institutions, and are sympathetic and understanding of the problems of the students.

The primary responsibility of the Police Department is performing traditional law enforcement roles of prevention of crime, enforcement of laws, protection of life and property, preservation of peace and apprehension of criminals.

The Department includes an Investigative Division to which information regarding criminal activity should be directed. Prompt, confidential attention will be given. A Crime Prevention and Public Awareness Office has also been established for the Department and is designed to help educate the public in the best ways to protect themselves and their property.

Realizing that people frequently call the police officer when they know of no one else to call, the Department takes pride in being available, capable and willing to respond to each situation presented regardless of how small it may seem. It is hoped that as police display a willingness and ability to perform these functions, the University community will become more aware of the presence of the police officer on campus and seek his/her assistance when crime is observed or suspected. This awareness and quick reaction enhances the crime prevention program by discouraging the commission of crime.

Access to all academic buildings and rooms during non-class hours may be gained only with the written permission of a faculty member. University police must be contacted to gain entrance into locked rooms.

The University prides itself on its record of safety maintained on campus and this Department maintains high standards both in its employees and their functions. However, no program can hope to successfully combat crime without the active assistance and input of the entire University community. When an unusual happening is observed, it takes only a moment to remember details and report it to the Police Department.

The Traffic Division is one of the most visible aspects of the Department as members of the community must make contact during vehicle registration or when having parking notices processed.

All persons desiring to park motor vehicles on campus are required to purchase and display a University parking permit. Permits designate specific parking area, depending upon the individual's classification as resident, commuter, faculty or staff. Night decals are available by the semester and are valid in any non-metered or reserved lot after 4 p.m. Persons with a night permit must pay to park at meters or toll gates between 8 a.m. and 4 p.m. Presentation of state vehicle registration or appropriate proof of ownership is required to obtain a permit. Permits do not guarantee a space will be available nor do they reserve a specific space, except in the case of handicapped individuals. Parking meters and toll gates are available for visitors on campus. Temporary permits are available from the Traffic Office for new employees, guests, and for vehicles being used while a registered vehicle is being repaired and/or other valid reasons for a period not to exceed two weeks. Two dollars per week will be charged for each additional week. Abbreviated copies of the *Campus Traffic and Parking Regulations* are available from the Traffic Office for the asking or when purchasing a permit.

Safety and accident prevention are other important services offered by the Department of Public Safety through the work of a safety coordinator. It is the responsibility of the coordinator to investigate accidents on campus, conduct safety inspections of all buildings, maintain all reports required by the N.C. Department of Labor and to generally ensure that all persons within the University community are provided with a safe and healthful environment, conducive to the prevention of illness or injury.

Those who have complaints or knowledge of safety hazards are invited to bring them to the attention of the safety coordinator without fear of retaliation. All complaints or notification of hazards will be acted upon and the employee or student notified of the response.

The Office for Handicapped Services provides information and assistance for physically impaired persons on the University campus. All students with impaired sensory, manual or speaking skills requiring assistance should identify themselves to the Office for Handicapped Services as early as possible to ensure University capability in meeting the needs of the student.

UNCC, a relatively new and modern campus, is generally accessible to the handicapped public. Every effort will be made to accommodate special requirements as necessary or feasible. The Office shall work with the student in locating any necessary educational auxiliary aids. The University shall not assume any responsibility for the provision of attendants, individually prescribed devices, readers for personal use or study, or any device or service of a personal nature. The arrangements for these types of services are entirely the responsibility of the individual student and should be established well in advance of the time such services are to begin.

Students who have grievances related to delivery by the University of special services for the handicapped should process the grievance in accordance with procedures on file in the Office of Handicapped Services.

The Charlotte Transit System provides bus transportation from the Square, from Southpark Shopping Center — via Eastland Mall and the apartment complexes along Barrington Drive. Service is provided on a regular schedule connecting with established routes throughout the city. Detailed information regarding routes, schedules and TRAC passes may be obtained in the Traffic Office, 134 King Building. Fees are set by Charlotte Transit and are subject to change.

Food Service

Resident students living in the high-rise and low-rise (Phase IV) halls must contract for room and board which provides three meals each day on either a five-day or seven-day plan, as they choose. These students are permitted to take their meals at the Residence Halls Cafeteria or the Cafeteria/Activities Building. A dollar allowance is given for certain meals if the student wishes to eat in various other food service facilities on campus with the student paying cash for anything over the established amount.

Resident students living in apartments (Phase I, II, III or V-A) and commuter students have several options for eating on campus. They may purchase a 21- or 15-meal plan as described on the previous page or they may purchase one of the following: (1) 10-meal plan which allows participant to eat any 10 meals Monday through Friday; (2) five-meal plan which allows participant to eat any five-meals Monday through Friday; (3) five-meal plan which allows participant to eat lunch Monday through Friday.

Once a meal plan has been selected, changes will be made only under the following conditions: (1) changes may be made during first week of the semester; (2) changes will be made whenever students move between residence halls and apartments; (3) after these periods, the only changes allowed will be to upgrade a plan; (4) a plan can be dropped only if a student withdraws from the University or moves to an apartment; (5) any exception to the above must be approved by the business manager and will result in a debt service charge; (6) meal plan sales and changes must be made in the Auxiliary Services Office, 422 Reese Building.

Resident students living in apartments (Phase I, II or III) and commuter students have several options for eating on campus. They may purchase a 21- or 15-meal plan as the students above or they may purchase one of the following: (1) 10-meal plan which allows participant to eat any 10 meals Monday through Friday; (2) five-meal plan which allows participant to eat any five-meals Monday through Friday; (3) five-meal plan which allows participant to eat lunch Monday through Friday.

Anyone may purchase individual meals for cash at the Residence Halls Cafeteria or Cafeteria/Activities Building and other food service locations throughout the campus.

Vending machines are located throughout the campus, and several locations have microwave ovens for heating items.

The University Bookstore makes available required textbooks, paperback books for leisure reading, personal computers with software and accessories, records, sweatshirts, jackets, campus emblems, personal grooming items, routine school supplies, greeting cards, sundries, fraternity/sorority items, household and novelty items. The Bookstore also offers film developing and printing service and service for special order books.

RESEARCH AND PUBLIC SERVICE

Office of Continuing Education and Extension

Continuing Education and Extension bridges the teaching resources of the University and instructional needs of citizens who are not full-time or campus-based students. As a public university located in the Carolinas' major population center, UNCC has an obligation to provide for the continuous education of adults in the Lower Piedmont. The office collaborates with the University's six colleges to provide degree-related instruction at locations away from the UNCC campus as well as short courses for continuing professional development and personal enrichment.

The *Extension Program* offers courses for academic credit to students unable to attend regular University classes. In order to accommodate the needs of professional or otherwise non-traditional students wishing to take degree-related credit courses, classes are held typically in the evenings or on weekends off-campus. Extension courses are offered in cooperation with and by approval of the academic department awarding the credit.

The *Continuing Education Program* conducts courses, seminars and institutes in response to specific community needs. Usually short and specific, continuing education is designed for training and development among the professions and for personal enrichment among the general public. Such programs, taught on- and off-campus, do not award academic credit but may qualify for Continuing Education Units. The CEU is a nationally recognized measure of a non-credit educational experience. Continuing Education courses draw on qualified instructors, usually from the University, occasionally from the community. We welcome requests and proposals for appropriate Continuing Education activities.

Call the Office of Continuing Education and Extension at 597-2424 for specific information about UNCC's instructional outreach.

Center for International Studies

The Center for International Studies offers a diversity of academic and cultural programs that seek to enhance the learning experience of the University community. A concentration in International Studies allows students to pursue an interdisciplinary and comparative study of foreign cultures and societies while they fulfill the academic requirements for a major in one of the approved University degree programs.

A concentration in international studies permits a wide variety of choice in subject matter and encourages course work in modern foreign languages, humanities, social sciences, and international economics and business. Carefully selected programs should be designed to provide students with cultural and intellectual enrichment for more rewarding lives in an increasingly interdependent world. Such programs should also be of particular value to those with career objectives in government, business, trade, finance, law, health and environmental programs, international agencies such as the United Nations, private religious and humanitarian service organizations, journalism, teaching, research, and military service. (See International Studies listing under Courses of Study and Special Programs for additional information.)

The Center also serves as a facilitator in the development of faculty exchange opportunities. Faculty are encouraged to work with the Center's staff in exploring and applying for a wide range of international exchanges. Among those are the Fulbright Exchange Program; reciprocal department exchanges; and exchanges based on agreements between UNCC and overseas institutions of higher learning.

Faculty and administrators are also able to take advantage of the Center's professional development program. This program provides opportunities for the further enhancement of international interests in the following ways:

1. Travel for international study and research;
2. Release time for the development of new international courses and specific international projects and
3. Faculty colloquia on international topics.

Travel and Study Abroad. The Center for International Studies offers UNCC students the opportunity to travel and study abroad either for a year, semester, or summer term. Programs during the summer are arranged in a variety of countries each year. A student should contact the Center for International Studies no later than March 30 to be considered for a summer travel/study program. (See International Studies listing under Courses of Study and Special Programs for additional information on study abroad and student exchange opportunities.)

International Student Services. International Student services are designed to respond to a diverse population having special needs in the areas of immigration, language, campus orientation, and cultural understanding. The focus of services include UNCC students, English Language Training Institute students, other international students, and faculty on an immigrant visa. Major programs include orientation, individual assistance with academic and personal questions, immigration matters, and campus and community services.

Campus Programming. A series of annual and one-time events is sponsored independently and in cooperation with other departments and agencies. They include:

1. Annual International Festival
2. International Film Festival
3. International Club
4. International Student Study Programs and Summer Institutes
5. A variety of international programs relevant to international student concerns. Examples include lectures, Model United Nations, and food day celebrations.

The English Language Training Institute (ELTI) provides intensive English instruction both for international students planning to attend American universities or colleges and for those individuals pursuing professional training in the United States. ELTI holds three sessions per year — fall, spring, and summer — and offers four language proficiency levels: basic, intermediate, advanced and academic preparation. Class size is limited to 15 students, and students attend class 20 hours per week. Exceptional students in the academic preparation level may take one course which carries up to three academic credits in the University.

ELTI also offers the Summer Institute for International Teachers of English. This program provides international teachers with intensive training in English as a Second Language methodology. In addition to course work, the Summer Institute emphasizes orientation to American culture through social events, trips and other activities.

Public Service. The Center seeks to initiate and respond to the international needs and interests of the community. Current programs include the following:

1. *Community Forums* — symposia on topics of current international interest;

2. *Great Decisions* — an annual series of lecture/discussions during the months of February and March on eight key policy issues;

3. *International Business Workshops* — programs focusing on specific aspects of international trade, e.g. letters of credit, customs regulations, international marketing, documentation, and foreign trade zone;

4. *Community-based programs having an international focus include:*
   Host Family Programs for foreign students,
   Bi-Lingual Education program in the Charlotte-Mecklenburg Schools,
   International Youth Exchange,
   International Information Center, and

5. *Service to individuals and community organizations for international information and program development.*

Urban Institute

The Urban Institute provides direction for the University's urban focus by initiating and supporting urban-related research, institutes, seminars, publications and special community projects. Institute activities are designed to increase productive interaction between The University and community. Projects are initiated by members of the faculty, community clients or the Institute staff and focus on a broad spectrum of urban topics, e.g., local government, waste management, land use, small business assistance, economic development, and teleconferencing. Students may become involved in Institute projects as part-time research assistants, interviewers, or in conjunction with course work or degree requirements by writing term papers, graduate theses, or completing internships.

Institute activities fall into several program areas. All are affected by the Institute's active involvement in seeking grants and contracts.

The Faculty Research and Public Information Program provides seed grant monies to faculty to develop proposals for submission to external funding agencies, assists in funding searches, proposal preparation and submission and maintains an inventory of faculty research expertise and skills. The program also administers such special educational programs as the National Issues Forum and publishes economic atlases and Urban Institute newsletters.

The Community Research Service Program responds to community needs and assists community clients in several ways. One focus is a Survey Service which conducts an annual survey of city and county residents and designs and implements surveys and needs assessments for a variety of community clients. In addition, the program responds to community needs, particularly the needs of local government by providing consulting and technical assistance on a contractual basis. Leadership Charlotte is administered by the program director, who is dually appointed with the Department of Political Science.

The Regional Information System is a computerized data bank containing data on Charlotte-Mecklenburg, North Carolina, the South and the nation. Files are available on a wide variety of topics including population, housing, income, real estate value, and land use. System data can be accessed in graphic and tabular form and is available to faculty for research and educational purposes.

The Piedmont Waste Exchange specializes in the development of safe and economical waste prevention and management strategies by providing research and consulting services to industries, government agencies and the general public in North and South Carolina. It publishes a quarterly bulletin, the *Waste Watcher,* which lists materials and services "available" or "wanted" by companies, conducts industry-specific workshops and conferences and conducts research with the College of Engineering and other University departments.

The Teleconferencing Service works with public sector and non-profit organizations seeking to use teleconferencing to meet their communication needs. It provides teleconferencing formats designed to meet individual organizational needs, securing of technical equipment to transmit and receive satellite broadcasts, networking of national teleconference receive sites, teleconference marketing and promotion, and product and process evaluation.

The University/Industry Cooperative Programs area initiates and develops cooperative projects between the University and the private sector by acting as a catalyst and a broker in developing programs in close cooperation with other University units. It operates, in conjunction with and under the direction of the College of Engineering, an Engineering Research and Industrial Development service which helps private firms find out about the resources existing in the College of Engineering and facilitates access to those resources. It emphasizes programs which are directed towards high technology firms and which can generate sufficient external funding to support their activity.

The Economic Development and Planning area conducts special research and planning projects focusing on economic development. Research and data analysis for economic development publications, survey research, and land use studies are typical activities. The Urban Institute is also coordinating the planning of University Place, a mixed-use development and town center for the University City area, as well as assisting in planning for University City.

Office of Academic Grants and Contracts

The Office of Academic Grants and Contracts has been established to inform and assist the University community in seeking grants, contracts and service agreements for funding research, training and other scholarly activities. The staff is available to consult with faculty and to assist in pre-award activities such as identification of sources, interpretation of guidelines, preparation of budgets and compliance with regulations. The Office also maintains a resource area consisting of grant guidelines, reference books and proposal preparation aids.

WFAE

Public radio WFAE-FM broadcasts with 100,000 watts of power to listeners in Charlotte and 20 surrounding counties in North Carolina. The only affiliate of National Public Radio in this part of North Carolina, WFAE programs jazz, classical music, news, information and public affairs 18 hours a day, 365 days a year. Volunteers and student interns supplement the work of seven full-time professional staff members in areas of operations, production and promotion. In addition, UNCC faculty, staff and students contribute to WFAE's ongoing local programming efforts.

Athletics

The University of North Carolina at Charlotte offers the interested student-athlete a choice of 12 varsity-level intercollegiate sports for men and women in which to compete on the varsity level.

Male athletes at UNCC compete in eight sports during the academic year — soccer and cross country in the fall; basketball, swimming and rifle in the winter (during fall and spring semesters); and tennis, baseball (also with a fall schedule) and golf (also with a fall schedule) in the spring. The sports of swimming and co-ed rifle were additions to the rapidly expanding 49er athletic program during the 1982-83 academic year.

The 49er men's program competes under the national governing powers of the National Collegiate Athletic Association (NCAA), of which it is a member of Division I, the highest competitive level (large colleges and universities), in all eight sports.

UNCC is also a charter member of the nine-year-old Sun Belt Conference, which includes Jacksonville; South Florida; South Alabama; Alabama in Birmingham; Virginia Commonwealth; Old Dominion and Western Kentucky. Championship meets and tournaments are conducted in six sports within the SBC, from which winners may advance to the NCAA's national championship.

A round-robin home and away SBC schedule is played in basketball, the sport which receives the major emphasis at UNCC. SBC baseball is divided into East and West divisions, with round-robin home and away doubleheaders within each division determining the two teams from each division who earn the right to compete in the annual four-team SBC Tournament in early May. UNCC soccer is also developing into a sport of national stature. The 49ers consistently play many nationally ranked soccer teams and have themselves earned rankings in the South, winning the 1983 Sun Belt championship.

The UNCC women's intercollegiate athletic program consists of seven sports, including volleyball, basketball, swimming, softball, cross country, tennis and a coed rifle team. The women's program also falls under the national governing jurisdiction of the NCAA, a move which came about during the 1982-83 academic year. And in 1984-85, the women competed in Sun Belt Championships in volleyball, basketball and tennis.

The 49er women now compete at the Division I level of the NCAA and are participating at the highest competitive level in the nation for the first time ever, a sign of the dramatic steps UNCC has taken to develop its overall athletic program. Scholarships for deserving female athletes are also available in all five women's sports, with basketball receiving the emphasis in terms of funds allocated.

The men's basketball team plays home games in the 11,666-seat Charlotte Coliseum; the baseball, soccer and softball teams play on newly constructed campus playing facilities; and the golf team competes at Pawtuckett Country Club. The remaining four men's teams play on campus. The UNCC women play home basketball games in the Charlotte Coliseum and the Mine Shaft gymnasium on campus; home volleyball matches and swim meets are held in the Mine Shaft; and both tennis teams compete on campus facilities.

DEVELOPMENTAL AFFAIRS

The Office of Development, located in the Administration Building, is responsible for coordination of University efforts to secure financial support from the private sector and to serve as the receiving point for gifts of dollars, securities, works of art, land and equipment.

Through the Foundation of the University of North Carolina at Charlotte, the General Alumni Association, Friends of UNCC, the Athletic Foundation and advisory boards, the various avenues of supporting the University are made known to individuals, corporations and foundations.

To achieve a superior standing, UNCC relies upon the private sector for funds not available through state appropriations. Contributors are encouraged to take advantage of the various and most favorable means of supporting the University. Included among these are cash gifts, charitable remainder trusts, annuity trusts, unitrusts, pooled life income funds, wills and bequests, insurance and matching gift programs.

Additional information is available in the Office of the Vice Chancellor for Development, UNCC, UNCC Station, Charlotte, N.C. 28223; telephone 704/597-2271.

A list of benefactions, is found on page 358. Scholarships are listed on pages 55-57.

The General Alumni Association of the University of North Carolina at Charlotte is the recognized official alumni organization. Graduates of the University are encouraged to provide updated address and employment information so that the University may maintain lifelong contacts with each individual. Persons attending the University of North Carolina at Charlotte for one semester are eligible for membership in the General Alumni Association.

Membership can help the student maintain friendships of college days and obtain useful information from the University about programs and social activities. The General Alumni Association executes annual telefunds as part of the annual giving program and contributes to worthy projects for the University. Thus, the alumnus can support Alma Mater in a useful and efficient way.

A quarterly newspaper is provided to Alumni, and group tours to vacation spots within the United States and also abroad are organized.

The Alumni Association co-sponsors with the University the Commencement Reception for the new graduates, parents, faculty and friends. Class reunions are held to honor the anniversary of various classes of graduates. The Homecoming activities highlight the events of the fiscal year for our alumni.

Regional chapters have been established in counties throughout the state to increase the involvement and interest of alumni throughout the state.

The Chancellor's Club provides UNCC Alumni an opportunity to support academic excellence in higher education by establishing an endowment fund for the Alumni Scholarships for Merit program. The Alumni Scholarships for Merit are awarded annually to two UNCC students for outstanding academic performance while attending the University.

The Alumni Office is housed in the Reese Building, and the Director of Alumni Affairs acts as the liaison officer between the graduates and the University.

The graduate should notify the Alumni Office of address changes and significant events in his or her life, such as marriage, births, new positions and honors. In this way, adequate records can be maintained, and the Alumni Office can pass good news along to friends of the alumnus.

The Foundation of the University of North Carolina at Charlotte was founded in 1960 and has had from its inception the goal of undergirding the University and assisting it in the quest for excellence. To accomplish its goals, the Foundation invites private sources to contribute so that needs unmet, or inadequately provided for through state funds, may be met.

Through the 1982-83 academic year, the Directors of the UNCC Foundation have allocated more than $2 million to the University for salary supplements, faculty research, scholarships and special projects.

Patrons of Excellence is a program established by the Foundation of the University of North Carolina at Charlotte, with the primary initial objective of supplementing the salaries of distinguished faculty members. Under the program, *Patrons* pledge a minimum of $1,000 a year for a number of 10 years or may make a donation of at least $10,000 at one time. Patrons of Excellence now number 269. The Foundation continues to seek additional Patrons.

STUDENT ACTIVITIES

Students at the University of North Carolina at Charlotte are encouraged to participate in extracurricular activities. Student Body Government, University Program Board, campus publications, WFAE (the radio station) are only a few of the activities available which can play a significant role in each student's development and total education. Participation in activities, ranging in type from service and religious to athletic and social and from creative arts and crafts to wilderness experiences, increases a student's opportunities to acquire leadership skills, to experience the responsibilities involved in functioning within a self-governmental process, and to develop personal talents and interests.

Students are in good standing and eligible for participation in student activities as long as they are academically eligible to continue their enrollment.

Student Body Government

The Student Body Government provides students an early experience in governmental affairs. Students often find their work in student government a useful background for later public service. The history of student government is as old as the institution itself. The University encourages student participation in its affairs and has student representatives on many of the faculty and administrative committees. The leaders of student government are committed to representing the student body and to developing students' awareness of the many facets of life at their University. All students who are regularly enrolled at UNCC, whether on a part- or full-time basis, are entitled to participate in student government.

At UNCC, Student Body Government comprises:

The Executive Branch, made up of the president, his/her cabinet, various appointees such as the attorney general and student legal counsel as well as a number of committees appointed by the president.

The Student Legislature, composed of the chairman, the four class presidents, the residence hall presidents, commuter student representatives, representatives chosen by the respective students majoring in the several academic colleges of the University, and graduate student representatives. The chairman of the Student Legislature conducts all meetings and serves as liaison between the Legislature and the president's office. The student body treasurer reports to the Student Legislature.

The Student Judiciary, composed of the justices of the Student Court, attorney general, and the student legal counsel. These bodies were established for the purpose of judging violations of the rules and regulations of the University, the student Constitution and the various student statutes.

The Student Leadership Development Program

The UNCC Leadership Development Program was implemented with the belief that leadership skills can be developed and that UNCC students deserve the best program available to nurture them in the acquisition of these skills. This program provides individuals with opportunities to develop skills and abilities at their own level; and it also provides the University and student organizations with potentially more effective and efficient leaders.

The goal is to provide a comprehensive and diverse program of leadership development activities for student leaders and potential leaders on the UNCC campus.

The program consists of five major components. Each component is directed at a target group of UNCC campus leaders, members of their organizations or potential leaders of campus organizations. A variety of training methods and formats are available for student leaders. The components of the Leadership Program are:

(1) The Motivators Program—For established leaders

(2) The President's Club—For club and organization officers

(3) Emerging Leaders Program—For freshmen and sophomores

(4) Developing Leadership Potential—A three-credit course in the Department of Human Services.

(5) Individual and Group Consultation

Contact the Dean of Students Office for more information—597-2375.

University Program Board

The Program Board develops the social, cultural, educational and recreational programs of an all-University nature for the students, faculty and staff. It provides an opportunity for students to participate in activities conducive to personal, social and educational development and tries to directly reflect student needs and interests. These programs include art exhibits, concerts, dances, coffee houses, travel programs, lectures, films and other special activities.

The Program Board consists of the chairperson, vice chairperson, secretary-treasurer, six committee directors and two members elected at large from the student body. The chairperson and vice chairperson and two at-large members are elected in the annual campus-wide spring elections. The directors are selected by an application-interview-election process during spring semester.

Student Media Board

The Student Media Board is comprised of student, faculty and administrative staff members, as well as representatives of the various student media. Its purposes are to promote the objectives of each publication and to guarantee editorial freedom to the publications within the framework of responsible journalism. The individual media under the Media Board are as follows:

Sanskrit is the literary arts magazine published by students interested in the arts. Original work in writing, drawing, photography and other arts is welcomed by the editor. Students are invited to become members of the magazine staff.

The 49er Times is the student newspaper, which covers campus news and provides journalistic experience. Experience on a campus newspaper, together with a broad educational base, often provides the background for a career on a newspaper or a magazine. The campus newspaper provides a vital service to the entire University community by keeping its members informed of issues of common concern and interest.

The *Prospector* is another publication which provides both a service to the University and an opportunity for student journalists to gain essential skills for later careers. The yearbook is designed to provide a valid picture of the spirit of campus life. It is valued as an organized pictoral record and as an opportunity for creative student journalists to produce a book which is aesthetically pleasing and representative of a student experience at UNCC. Student activity fees partially support this publication, but students who wish to have a copy must purchase one.

ORGANIZATIONS

The University has many clubs and organizations which help meet the academic, social, political and religious needs of UNCC students. Following is a list of the clubs and organizations which are chartered for the 1984-85 academic year through the Student Government Association. Students interested in any of these organizations should contact the Student Government Office (597-4606) or the Dean of Students Office (597-2375).

AIESEC*
Allied Health Club
American Marketing Association
Collegiate Chapter
American Society of Civil Engineers
American Society of Mechanical Engineers
American Society of Personnel Administrators
Arnold Air Society
ASHRAE**
Associated Student Chapter-
American Institute of Architects
Association of Biology Graduate Students
Association for Computing Machinery
Association of Nursing Students
Baha'i Club
Baptist Student Union
Black Student Union
Campus Ministry
Children of the Sun
Chi-Rho
Circle K
Christian Science Organization
College of Architecture-Student Council
Commuter Association
Commuter Information Assistance
Dungeons & Dragons
Debate Team
German Club
Indian Student Association
Institute of Electrical & Electronics Engineers
Institute of Internal Auditors
International Club
International Studies
Intrafraternity Council
Latter Day Saints Student Association
Mean Green Music Machine
Microprocessor Club
Model United Nations Club
Muslim Student Association
National Art Education Association
National Association of Black Accountants
North Carolina Student Legislature
Panhellenic Council
PEACE
Pi Sigma Epsilon
Political Science Club
Pre-Law Society
Republican Club
Robotics International
Student Alumni Association
United Campuses to Prevent Nuclear War
Visual Arts Students Organization
Way Campus Outreach
WIZ
Young Democrats

Greek Organizations
Alpha Delta Pi Sorority
Alpha Kappa Alpha Sorority
Alpha Kappa Psi Fraternity (Business)
Alpha Phi Alpha Fraternity
Alpha Phi Omega Fraternity
Alpha Sigma Phi Fraternity
Chi Omega
Chi Phi Fraternity
Delta Sigma Theta Sorority
Delta Zeta Sorority
Kappa Alpha
Kappa Alpha Psi Fraternity
Kappa Sigma Fraternity
Lambda Chi Alpha Fraternity
Omega Psi Phi Fraternity
Omicron Delta Kappa
Pi Kappa Phi Fraternity
Sigma Phi Epsilon Fraternity
Sigma Phi Rho Fraternity
Tau Beta Phi
Zeta Tau Alpha Sorority

**Association Internationale des Etudiants en Science, Economiques et Commerciales*
***American Society of Heating, Refrigeration and Air Conditioning Engineers*

HONORARIES

Alpha Kappa Delta is a national sociology honor society established for the purpose of promoting interest in sociology, research on social problems, and enhancement of human welfare. The Eta of North Carolina Chapter was organized at UNCC in 1974. Its members are selected from those students who have demonstrated superior academic achievement both in their sociology major and their total academic program.

Phi Alpha Theta, which has chapters in the United States, Canada and the Philippines, has as its purpose to encourage the study of history and to acknowledge academic achievement in history. To be eligible for membership, undergraduates must have completed at least 12 semester hours in history with a grade average in all history courses of 3.1 or better and an overall grade average of 3.0 in other courses and must rank in the upper 35 percent of the respective classes. Graduate students who recently received their undergraduate degrees may apply on the basis of their undergraduate records. Graduate students who are not recent graduates must have completed at least one-third of the requirements for the master's degree (at least 10 credits in history) and have a straight *B* average or better.

Phi Kappa Phi, a national honor society with chapters in 49 states, the Philippines and Puerto Rico, has the primary objective of recognizing and encouraging superior scholarship in all academic disciplines. To be eligible for election to membership, a student must have attended UNCC for at least one year and rank scholastically in the upper five percent of the junior class, the upper 10 percent of the senior class, or the upper 10 percent of the graduate enrollment. Graduate students also must have an outstanding undergraduate record. Faculty members and alumni who have achieved scholarly distinction may, in limited numbers, be elected to membership. The number of undergraduates elected to membership within an academic year cannot exceed 10 percent of the number of candidates for baccalaureate degrees that year; and the number of graduate students elected to membership in an academic year cannot exceed 10 percent of the graduate enrollment at the time of the election.

Pi Mu Epsilon is a national honorary society established to promote interest in mathematics. Invitations are based on superior academic achievement both in mathematics and in the general program. Activities include lectures, films and a late spring social meeting.

Pi Sigma Alpha is a national honor society which promotes the study of politics and recognizes the achievements of superior students in the discipline of political science. Invitations for membership are issued to all political science majors who are juniors or seniors and have a quality point average of at least 3.2 overall and in political science courses. Its activities include a formal initiation banquet near the end of each academic year, featuring a talk by an established scholar in the discipline.

Sigma Theta Tau, the Honor Society of the College of Nursing, was established for the purpose of recognizing superior knowledge, recognizing the development of leadership qualities, fostering high professional standards, encouraging creative work and strengthening commitment to the ideals and purposes of the nursing profession. Candidates for the honor society are selected from baccalaureate students who have completed at least one-half of the required nursing curriculum with a cumulative grade average of 3.0 or better. Graduate nurses with a baccalaureate or higher degree who have demonstrated marked achievement in the field of nursing are also eligible for membership.

Omicron Delta Kappa is a national leadership honorary and was created for the purpose of recognizing outstanding leadership and achievement among students who have made significant contributions to the development of the University community. Students are selected each year by a committee of students, faculty and staff. Selection is primarily based on a point system which considers academics, leadership, service and activities. The student receiving the highest number of points is given the Cindy Holmes Award in memory of the late Cindy Holmes whose unselfish contributions to the University represent the highest ideals of the Society.

HONORS AND AWARDS

A number of individual student honors and awards for academic achievement, leadership and service are given annually through the various colleges and on a University-wide basis. Among the academic honors are the Chancellor's List, commencement marshals and graduation with

distinction of summa cum laude, magna cum laude or cum laude. (See the chapter on Academic Regulations and Degree Requirements for more information.) An annual Honors and Awards Program is held in the spring prior to graduation.

UNIVERSITY FORUM COUNCIL

The University Forum provides a campus platform for outstanding national figures to examine key issues in depth. The University Forum Council, composed of representatives from the student body, faculty, administration and the community, sponsors the Forum each year. Usually held during the spring, the Forum was initiated in 1966.

OFFICE OF RELIGIOUS AFFAIRS

As a tax supported public institution, the University of North Carolina at Charlotte neither promotes nor recommends any religious orientation. However, the University recognizes that spiritual discernment and moral appreciation are essential to the development of the whole personality and therefore has established an Office of Religious Affairs headed by a coordinator.

The functions of this office include providing information to the campus community and general public about religious activities and programming as well as coordinating the activities of religious organizations in the University. A large number of such organizations at UNCC provide a variety of services including prayer, pastoral and academic counseling, retreats, Bible study, marriage preparation, discussion groups, ecumenical activities and social services. Faculty members and students may obtain additional information by contacting the Office of the Dean of Students.

The religious denominations listed below provide the full-time services of their representatives to serve the spiritual needs of students and other members of the campus community.

Don Rogers, Baptist
Joseph Zuschmidt, Catholic
Rusty Inman, Presbyterian/Methodist

These persons and other denominational representatives may be reached through the Office of Religious Affairs, 200 King Building, 597-2344.

Admission To The University

Degrees Offered

The University offers programs in the areas listed below which lead to the baccalaureate and master's degrees and the Certificates of Advanced Study indicated. (Some degree programs may be completed by taking all courses in the evening. For details, consult the department offering the program.)

BACCALAUREATE DEGREES

Bachelor of Arts (B.A.)

Afro-American and African Studies
Anthropology
Architecture
Biology
Biology (with option in Medical Technology)
Business Administration
Chemistry
Chemistry (with option in Medical Technology)
Computer Science
Earth Sciences
Economics
Education
English
French
Geography
German
History
Human Development and Learning
Mathematics
Philosophy
Physics
Political Science
Psychology
Religious Studies
Sociology
Spanish

Bachelor of Architecture (B. Arch.) (5-year program)

Bachelor of Science (B.S.)

Accounting
Biology
Biology (with option in Medical Technology)
Chemistry
Computer Science
Criminal Justice
Earth Sciences
Geography
Mathematics
Physics

Bachelor of Creative Arts (B.C.A.)

Art
Dance
Music
Theatre

Bachelor of Science in Civil Engineering (B.S.C.E.)
Bachelor of Science in Electrical Engineering (B.S.E.E.)
Bachelor of Science in Mechanical Engineering (B.S.M.E.)

Bachelor of Engineering Technology (B.E.T.)

Civil Engineering Technology
Electrical Engineering Technology
Manufacturing Engineering Technology
Mechanical Engineering Technology

Bachelor of Science in Nursing (B.S.N.)

GRADUATE DEGREES

Master of Arts (M.A.)

English Geography History Mathematics Mathematics Education Psychology Sociology

Master of Business Administration (M.B.A.)

Master of Education (M.Ed.)

Educational Administration	Guidance and Counseling	Middle Grades Education
Curriculum and Instruction	Health Education	Special Education
Early Childhood Education	Reading Education	Teaching English As A Second Language
Intermediate Education	Supervision	

Master of Human Development and Learning (M.H.D.L.)

Counseling and Guidance (Agency)

Master of Science (M.S.)

Biology	Chemistry	Criminal Justice

Master of Science in Engineering (M.S.E.)

Master of Science in Nursing (M.S.N.)

Master of Urban Administration (M.U.A.)

Certificates of Advanced Study

(Sixth Year)

Counseling and Guidance	Secondary Education (English, History, Mathematics)
Elementary (Early Childhood and Intermediate) Education	Curriculum and Instruction Specialist (Supervision)
Educational Administration	
Special Education	

Application Dates

Students interested in enrolling at UNCC are advised to file their applications for admission according to the schedule below or earlier if possible. The schedule is based on the amount of time required to process an application and inform the student of the admission decision. During periods of rapid growth or in programs which have limitations on the number of new students they can accept, available space may be filled earlier than the dates indicated below.

Term of Entry	Application Should Be Filed By	Application Should Be Completed By
First Summer Term	May 1	May 15
Second Summer Term	June 1	June 15
Fall Semester	July 1	July 15
Spring Semester	December 1	December 15

The University may alter these application dates without further notice in accordance with available resources and the enrollment limitation established by the North Carolina General Assembly.

Students planning to live on campus should apply for admission and request a housing application as early as possible. *Admission to UNCC does not guarantee residence hall space* because the demand for on-campus housing is usually greater than the supply. Students who request on-campus housing will receive a housing application with their notice of admission. Students are advised to complete the housing application and return it and the required prepayment promptly to increase the possibility of getting space in one of the residence facilities. Early application for housing is particularly important for physically impaired students because of the limited number of housing units designed to accommodate their needs.

If a student should decide not to enroll for the semester he/she requested, the University will hold his/her application in an inactive file for one year. During this year the University will reconsider the application for another term upon written request. Updated transcripts and other credentials may be requested if appropriate.

Admission To The University

The University considers all applications without regard to race, color, sex, national origin, handicapped status, age or religion. The University reserves the right to withhold the admission of any applicant who fails to meet any of the requirements for admission. In addition, it reserves the right to restrict enrollments when necessary because of budgetary or other constraints. Applications for either regular semester or the summer terms should be submitted and completed no later than the dates published in this catalog. In some programs, the vacancies will be filled several weeks prior to those deadlines.

All applicants for admission are reviewed as soon as the required credentials are received. All relevant factors are considered, with major emphasis being placed on the academic history of the applicant. The intent of the University is to offer admission to those applicants whose credentials indicate a strong likelihood for success in their selected curricula. The Admissions Advisory Committee may make exceptions to the minimum criteria for applicants who are judged to have potential or talent not revealed by test scores and high school class rank.

Not all applicants who meet the minimum requirements can be accommodated in some of the programs. Architecture, accounting, business administration, engineering and nursing programs have more qualified applicants than spaces to accommodate them. Thus, these programs select the best qualified from those meeting the minimal requirements.

Notification dates of admission will vary by program. The College of Architecture invites a number of its top applicants to come to the campus for an interview. Consequently, notification of admission to this program will be later than for other programs. Applicants to most programs may expect to receive notification of the admission decision within a month after all required credentials are received by The University.

Evidence of good physical and mental health is required prior to registration. A medical report form is sent to successful applicants along with the notice of admission.

Persons seeking application forms and information about undergraduate and graduate programs should address inquiries to:

Office of Admissions
University of North Carolina at Charlotte
Charlotte, North Carolina 28223
Telephone: 704/597-2211

Requirements For Undergraduate Admission

GENERAL REQUIREMENTS FOR UNDERGRADUATE ADMISSION

1. Application in writing to the Admissions Office.
2. Satisfactory evidence of good character.
3. Satisfactory record of scholastic achievement.
4. Application fee of $15, which is neither deductible nor refundable.
5. The applicant bears the responsibility for supplying the University with all required credentials.

ADDITIONAL ADMISSIONS REQUIREMENTS FOR FOREIGN APPLICANTS

1. Submission of Official Scores on the Test of English as a Foreign Language or the Michigan Test, if the applicant is from a non-English speaking country.
2. A Certificate of Financial Responsibility must be filed showing the applicant's financial resources during his/her stay in the United States.

3. Under no circumstances will an I-20 form be issued until the applicant has been admitted to a degree program.

REQUIREMENTS FOR CONSIDERATION FOR ADMISSION TO FRESHMAN STANDING

Admission of freshman students is based on the predicted grade point average (PGA), a combination of secondary school class rank and test score in which class rank approximately is weighted twice as important as test score.

1. Transcript of secondary school study which identifies the applicant as a graduate of an accredited secondary school and bears a recommendation by a school official. The record should show the grades through the eleventh year, senior year courses in progress, rank in class and pertinent test data. A high school equivalency certificate or G.E.D. may be submitted in lieu of a secondary school diploma.

2. Applicants for admission must present 16 acceptable units, 13 of which are to be academic (college preparatory) courses and are expected to include four units of English, three units of algebra and geometry, two units of social science, one unit of natural science, and two units of a foreign language. *Students admitted to the University who have not completed the expected units in mathematics and a foreign language will be required to complete appropriate courses in these areas during their first year at UNCC.*

Foreign Language. Students who have not completed the expected secondary school units of a foreign language may fulfill that requirement by successfully completing two semesters of an elementary language offered (1) during their first year of study at UNCC or (2) in the summer program of an accredited college or community college prior to enrollment at the University. Students receive university course credit for these courses.

Mathematics. Students who have not completed the expected secondary school units in mathematics may fulfill that requirement by successfully completing appropriate courses offered (1) in the summer programs of secondary schools, community colleges and technical institutes prior to enrollment at the University or (2) during their first year of study at UNCC. Students who have above average grades in secondary school mathematics may enroll in an entry level mathematics course at The University which will fulfill the secondary school requirement and for which the student will receive university credit. It is recommended that students with average grades and students who have not had mathematics for more than four years consider taking a lower level course. Although the University does not offer or award credit for precollege courses, such courses are readily available from nearby institutions. The Admissions Office will provide information upon request.

Beginning with the fall 1988 semester, high school graduates will be required to present four units in college preparatory English, three units in mathematics, including geometry, Algebra I and Algebra II; two units in social studies, including one unit in U.S. history and one unit in government and economics; three units in natural science, including one unit in a life or biological science, one unit in a physical science and one laboratory course; and two units in one foreign language. The following additional units are recommended: one unit of mathematics and one unit of foreign language in the 12th grade, one unit of world history and one-half unit of health education.

3. *An official* score report from the American College Testing Program (ACT) or the Scholastic Aptitude Test of the College Entrance Examination Board (SAT).

   While the University recognizes that test scores may be less important than academic history in predicting the chances for collegiate success, applicants are expected to present a satisfactory combination of secondary school class rank and SAT or ACT scores. Generally, applicants who rank in the upper half of their graduating classes and present either a total SAT score of 800 with neither the Verbal nor the Math scores below 350 or a composite ACT score of 18 with neither the English nor the Math score below 16 will be offered admission to UNCC.

   Students may obtain test information and application forms from their school counselors or by writing to:

   American College Testing Program
   P.O. Box 168
   Iowa City, Iowa 52240
   (UNCC Code — 3163)

   Educational Testing Service
   P.O. Box 592
   Princeton, New Jersey 08540
   (UNCC Code — 5105)

4. Transfer applicants who present fewer than 24 hours of transferable work are considered *applicants for freshman standing* and, in addition to requirements listed above, they must have attained at least a *C* average in their post-secondary study, as evidenced by official transcripts mailed directly to the Office of Admissions by each institution attended.

Special Requirements for Acceptance into Accounting. Beginning Fall 1986, applicants must have a predicted grade point average (PGA) of at least 2.20 according to the University's calculation.

Special Requirements for Acceptance into Architecture. Applicants must present algebra, trigonometry, plane and solid geometry, or the equivalent in integrated courses. They are expected to have a Math score of at least 400 on the SAT or 18 on the ACT. A personal interview and letter of intent are also required.

Special Requirements for Acceptance into Business Administration. Applicants are expected to present a Math score of at least 400 on the SAT or 18 on the ACT.

Special Requirements for Acceptance into Computer Science. Applicants must present a predicted grade point average (PGA) of at least 2.5, according to the University's calculation and satisfactory completion of Algebra II, or the equivalent.

Special Requirements for Acceptance into Engineering. All applicants must present acceptable grades in algebra, trigonometry, plane and solid geometry, or the equivalent in integrated courses.

A. A student satisfying
   *SAT MATH $>$ 500, SAT VERBAL $>$ 400, HS Rank $>$ 1/2
   or
   *SAT MATH $>$ 500, SAT VERBAL $>$ 350, PGA $>$ 2.5, HS Rank $>$ 1/2
   may be admitted directly to the lower division of a department. The lower division encompasses the first two years of catalog specified courses in a department.

B. A student not admitted to the lower division but having SAT MATH $>$ 450, SAT VERBAL $>$ 350, HS Rank $>$ 1/2, will be admitted to the pre-engineering program in the College of Engineering. The student may indicate the major of interest as an aid in the selection of his/her adviser.

*Or ACT equivalents.

Special Requirements for Acceptance into Mathematics. Applicants must present a predicted grade point average (PGA) of at least 2.5, according to the University's calculation and satisfactory completion of Algebra II, or the equivalent.

Special Requirements for Acceptance into Nursing. Nursing applicants must present biology and chemistry.

Early Admission. The University will admit specially talented high school students after they have completed the eleventh grade (achieved bona fide senior status as defined by their respective school systems) provided they meet other standards required for freshman admission.

A letter of recommendation from the student's secondary school principal is required for consideration for early admission. Applicants admitted through the early admission program have usually shown outstanding ability in their overall academic performance.

Advanced Placement Course Credit (APP). Students may receive credit for Advanced Placement Program Tests of the College Entrance Examination Board in accordance with academic regulations published in this catalog. Students must request that official AP test results be sent directly to the Office of Undergraduate Admissions, (Code 5105).

Admission of North Carolina Scholars. Students in the North Carolina Scholars Program may be confident of their admission to UNCC. An application for admission along with supportive materials, including SAT scores, is necessary only for matriculation, program evaluation and advising upon enrollment.

REQUIREMENTS FOR CONSIDERATION FOR ADMISSION OF TRANSFER STUDENTS

Applicants who have attended other post-secondary institutions without earning at least 24 semester hours in transferable courses are considered to be applicants for freshman standing and must also meet the requirements listed in the preceding section.

1. Official transcripts must be mailed directly to the Office of Admissions by each post-secondary institution an applicant has attended.
2. An official secondary school transcript. (Applicants who have earned an A.A., A.A.S. or Baccalaureate degree are not required to send a secondary school transcript.)
3. Applicants for transfer admission must present a minimum academic average of *C* based on *all* post-secondary courses attempted and be in good standing at the last institution attended.

4. Applicants for admission to Architecture, Engineering and Nursing must meet the additional mathematics and science requirements for admission as a freshman. Those requirements may be satisfied with either appropriate high school or college courses.

Special Requirements for Acceptance into Accounting. Beginning Fall 1986, applicants must present a grade point average of 2.75 or more in the following 10 courses or the portion they have completed: ENG 1101 and 1102, MAT 1101, 1120 and 1220, CSC 1100, ECO 2101 and 2102, and ACC 2121 and 2122. Applicants who have not completed all 10 courses also must present an overall GPA of 2.5 or more. A GPA of 2.75 or more in the 10 courses is required for enrollment in the junior level accounting courses beginning with ACC 3138.

Special Requirements for Acceptance into Architecture. A personal interview and a letter of intent are required for consideration for acceptance into Architecture.

Special Requirements for Acceptance into Business Administration. Applicants must present a grade point average of at least 2.5 (on a 4.0 scale) for acceptance into the College of Business Administration.

Special Requirements for Acceptance into Computer Science. Applicants must present a grade point average of at least 2.5 on a 4.0 scale in all previous college courses with no grade less than C in computer science courses previously undertaken.

Special Requirements for Acceptance into Criminal Justice. Graduates of two-year institutions who wish to enter the General concentration, which is one of the four concentrations offered in the Criminal Justice program, must have earned an A.A.S. degree with a major in a criminal justice area.

Upon acceptance of the A.A.S. degree, the successful applicant may be granted up to 64 semester hours which are valid only toward the General concentration.

Special Requirements for Acceptance into Engineering. Applicants must present a grade point average of at least 2.5 (on a 4.0 scale). All transfer students will be admitted to the lower division of a department, and evaluation of transfer credits to a program will follow the guidelines of the North Carolina Engineering Policy Board. The actual determination of transfer credits applicable toward degree requirements will be the responsibility of the department chairman. Transfer students not satisfying the GPA $>$ 2.5 but from an ABET accredited engineering program may be admitted on an individual basis. Recommendations for such admission must come from the chairman of the major department.

Special Requirements for Acceptance into Engineering Technology. Technical institute graduates who wish to enter the engineering technology program at the University of North Carolina at Charlotte must meet the following requirements:

1. Earn an Associate in Applied Science degree, or its equivalent, in a field appropriate to the option which the student plans to enter.

2. Achieve an overall grade point average of at least 2.2 (based on the 4.0 scale) on all courses taken at the technical institute. Exceptions to this requirement will be considered on the basis of individual merit.

3. Complete satisfactorily the prerequisite background courses for the option which the student plans to enter.

Acceptance of the A.A.S. degree indicates the acceptance of 64 semester hours toward the Bachelor of Engineering Technology degree only. These hours become invalid when a student transfers to any other degree program.

Special Requirements for Acceptance into Mathematics. Applicants must present a grade point average of at least 2.5 on a 4.0 scale in all previous college courses with no grade of less than *C* in mathematics courses previously undertaken.

Special Requirements for Acceptance into Nursing. Applicants must present a grade point average of at least 2.5 (on a 4.0 scale). Registered Nurses who are currently licensed to practice in North Carolina may be admitted to the Pathway Program, an upper division program leading to the Bachelor of Science in Nursing degree, by meeting special requirements published in the Nursing section of this catalog.

READMISSION OF FORMER STUDENTS

A student must make application for readmission to the University if he/she did not complete the last *regular* semester, fall or spring, prior to the semester or summer term for which he/she wishes to register. Applications should be filed at the Admissions Office in accordance with the published dates.

Readmissions decisions are based on a review of the student's complete University record, with major emphasis given to the academic history and the probability for success in the major department and in terms of the general degree requirements.

Students who leave UNCC and subsequently earn an Associate of Arts degree may apply for admission as a transfer student and transfer a maximum of 64 semester hours. Hours earned and the grade point average at UNCC will be computed only on work attempted after readmission.

For information on readmission after suspension for academic reasons, see page 66.

Second Baccalaureate Major. Students who have earned a bachelor's degree from UNCC may apply for readmission into a program leading to a second major. See requirements which follow.

Two Year Rule for Undergraduate Students. Any undergraduate student who has not been enrolled at UNCC for a minimum period of 24 consecutive months is eligible for *one* readmission under the "two year" rule. Colleges and departments which have published admission or continued enrollment standards that are more restrictive than general University requirements retain the right to admit or to deny admission to a specific program.

If a student is readmitted under the provisions of the two year rule, then only those courses for which the student has received a grade of *C* or better (or *H* or *P*) can be used for academic credit. His or her grade point average will be based only on work attempted after readmission. Eligibilty average will be based only on work attempted after readmission. Eligibility for continued enrollment is determined as in the case of transfer students.

To qualify for graduation with honors, a student must complete at least 48 hours in residency after readmission to UNCC which are used in computing the grade point average.

ADMISSION FOR SECOND BACCALAUREATE DEGREE

Students who have earned bachelor's degrees from UNCC or other accredited institutions may apply for admission to a program leading to a second degree of the same level if the following requirements are met:

1. Application in writing must be made to the Admissions Office in accordance with the published application dates.
2. The major field selected must be different from that of the first degree.
3. The degrees sought must be different from the first when that degree was granted by UNCC.
4. Applicant must meet the requirements for acceptance into the selected field.

OTHERS ELIGIBLE FOR ADMISSION

Auditors. With the consent of the instructor, any student eligible for admission to The University may register as an *auditor* for any class in which space is available. The fees and procedures are the same as those for a credit enrollment. (See page 62 of this catalog concerning academic regulations.)

Escrow Program Participants. The Escrow Program provides an opportunity for highly qualified students to take college credit courses while enrolled in secondary school. Records of credit earned will be maintained for use at the University or at another institution of higher learning.

Applicants recommended for participation in the program usually have shown great ability in particular academic areas. The recommendations are normally made by the secondary school principal.

Requests for additional information and application blanks should be directed to the Office of Admissions at UNCC.

Senior Citizens. Residents of North Carolina who have attained the age of 65 and who meet applicable admission standards may enroll tuition-free on a space-available basis. Senior citizens

who enroll in these offerings of the Performing and Visual Arts Departments will be obligated to pay the special fees which are assessed all students who enroll in these Departments. Interested persons should contact the Office of Admissions.

Non-degree Students. Non-degree students are those who are not candidates for degrees and who do not file complete academic credentials. They may enroll in undergraduate courses at UNCC until they have attempted a total of 18 semester hours with grade evaluation, but regular degree students will have preference for a place in classes. Non-degree students are expected to conform to the standards required of all students. After reaching the 18-hour limitation, non-degree students must be reviewed and be acceptable for regular degree status before enrolling again at UNCC.

Non-degree students who have done previous college work (including UNCC) must be eligible to return to the institution last attended. This classification is not open to foreign nationals who are on student visas.

The student must be 18 years of age or over and must understand at the time of his registration that the work completed in non-degree student status will be evaluated in terms of major department and degree requirements only after the student's formal admission to a degree program.

Transient Students (Visitors). Students enrolled at other colleges and universities who have written permission from their institutions to take specified courses at The University in a given semester or term may be admitted as transient students on a space available basis.

Requirements For Graduate Admission

ADMISSION CLASSIFICATIONS

Admission to one of these categories does not imply and should not be confused with later admission to candidacy for a graduate degree.

Full Standing. Applicants who meet the general requirements for admission to graduate study plus any specific requirements imposed by the college or department of academic concentration for the degree sought will be admitted to full standing.

Conditional Standing. Conditional admission to full standing may be granted to students who have: (a) general or special deficiencies which require remedial work; (b) degrees awarded as long as six years prior to admission; or (c) a less clearly predicted chance of success according to available criteria.

Each student granted a conditional admission will be responsible for contacting his/her adviser when he/she has successfully satisfied the conditions for admission to full standing. The adviser will then be responsible for contacting the Registrar's Office in writing, concerning any change in the student's admission status.

Post Baccalaureate Students

Students who wish to take courses beyond the baccalaureate degree for certificate renewal, for transfer to another institution, as prerequisites for admission to a graduate degree program or for personal satisfaction may be admitted as post-baccalaureate students. This classification is not open to foreign nationals who are on student visas.

A post-baccalaureate student who is subsequently admitted to full or conditional standing in a degree program on the basis of an approved regular application may, with the permission of his/her adviser, apply a maximum of six hours acceptably completed in the post-baccalaureate status toward a degree.

The following policies apply to students who wish to register as post-baccalaureate students:

1. Post-baccalaureate students must have a baccalaureate degree from an accredited institution of higher education.
2. Post-baccalaureate students may register for course work at any level for which they have the prerequisites.
3. Post-baccalaureate students will be subject to the academic regulations and standards required of degree students.
4. The PBS classification carries with it no implication that a student will be admitted to a degree program.

5. Post-baccalaureate students will be assessed tuition and fees based on the level of courses for which they are enrolled. If enrolled in any course for graduate credit, they will be assessed graduate fees for all courses.

6. A post-baccalaureate student who is subsequently admitted to a graduate degree program may request that a maximum of six hours completed for graduate credit be used for his/her program. All course work must be approved by the student's department and listed on the student's Admission to Candidacy form.

Unclassified Students. An applicant wishing to take more than nine hours of graduate course work and who does not intend to seek a master's degree may be admitted to full standing as an unclassified student. A completed application form, together with all supporting data, should be filed in the Admissions Office prior to the application deadline date for the term in which the applicant wishes to enroll. If such applicant meets the general criteria for admission, he/she may then be admitted to full standing as an unclassified student.

Readmission. Students in degree programs who are in good standing and whose enrollment is interrupted for one or more academic terms should apply for readmission at least six weeks prior to the beginning of the term in which they plan to re-enroll, on a form furnished by the Admissions Office. Such applications will normally be granted without question.

Students whose enrollment is terminated for academic reasons may request readmission in accordance with academic regulations published in this catalog.

Transient Students. Students enrolled at other colleges and universities who have written permission from their institutions to take specified courses at The University in a given semester or summer term may be enrolled as transient non-degree students.

Auditors. With the consent of the instructor, any student eligible for admission may register for any class for audit. The application procedure and fees are the same as for classes taken for University credit. (See academic regulations pertaining to auditors in this catalog.)

Non-Matriculation. An applicant admitted to a degree program who fails to enroll for the term to which admitted is presumed to have withdrawn his/her application. The application may be reinstated if the request to do so is received within one year from the originally requested term of entry. This request should be in writing and addressed to the Admissions Office at least six weeks prior to the term in which the applicant desires to register.

GENERAL REQUIREMENTS FOR GRADUATE ADMISSION AT THE MASTER'S LEVEL

1. Application in writing submitted to the Admissions Office.

2. Possession of a bachelor's degree, or its equivalent, from an accredited college or university.

3. Two official transcripts of all previous academic work attempted beyond high school sent directly to the Admissions Office from each institution attended.

4. Satisfactory test scores as specified in the section of this catalog entitled "Additional Requirements for Acceptance into Specific Graduate Programs."

5. An overall grade point average of at least 2.50 (based on the 4.0 system) on all of the applicant's previous work beyond the high school The average of the major or basic courses prerequisite to the area of proposed graduate study should be 3.0 or better.

6. At least three evaluations from persons familiar with the applicant's personal and professional qualifications.

7. An essay describing the applicant's experience and objective in undertaking graduate study.

8. Acceptance into a specific program must be approved by the department or college offering the program. Meeting minimum requirements for admission does not guarantee acceptance into a program. The University reserves the right to restrict enrollments when necessary because of budgetary and other constraints including the availability of faculty expertise in a specified area of study and the enrollment limitation established by the North Carolina General Assembly.

Students who meet the foregoing requirements but do not wish to enroll in a specific degree program may be admitted to full standing as unclassified students.

Certain other applicants who satisfy prerequisites for specific courses may be admitted to those courses as post-baccalaureate students though they may not meet all the foregoing requirements. Students admitted as post-baccalaureate students who later wish to qualify for full standing must reapply for the new classification.

A person will be considered for admission to a degree program only after the application and all its supporting credentials have been filed with the Admissions Office. Any supporting credentials that are submitted without an application will be maintained on file in the Admissions Office for one year. Applications with supporting credentials will be maintained on file for one year for individuals who are admitted to degree programs but who do not enroll in the term for which their admission was processed. The applications and supporting credentials for individuals who are found not to be admissible to degree programs will be maintained on file for one year. Persons who do not submit their materials in time to be considered for admission in the term which they have requested are expected to notify the Admissions Office if they wish to be considered for admission to any subsequent term.

GENERAL REQUIREMENTS FOR GRADUATE ADMISSION AT THE SIXTH-YEAR LEVEL FOR THE CERTIFICATE OF ADVANCED STUDY (CAS)

1. Application in writing, submitted to the Admissions Office.
2. Master's degree and *B* average or better.
3. "G" Certificate or equivalent in appropriate area.
4. Two official transcripts of all graduate work sent directly to the Admissions Office from each institution attended.
5. Satisfactory scores from the aptitude portion of the Graduate Record Examination or the Miller Analogies Test.
6. Recommendations and/or nominations from professionals who know of the applicant's work.
7. An essay describing recent professional experience in roles related to the position for which advanced certification is sought.

ADDITIONAL ADMISSIONS REQUIREMENTS FOR FOREIGN APPLICANTS

1. Submision of Official Scores on the Test of English as a Foreign Language or the Michigan Test, if the applicant is from a non-English speaking country.
2. A Certificate of Financial Responsibility must be filed showing the applicant's financial resources during his/her stay in the United States.
3. Under no circumstances will an I-20 Form be issued until the applicant has been admitted to a degree program.

All applicants submitting transcripts from non-U.S. educational institutions should note that some bachelor's degrees given by non-U.S. schools are not equivalent to the American bachelor's degree. Recipients of these degrees are not eligible for graduate study at the University of North Carolina at Charlotte.

ADDITIONAL REQUIREMENTS FOR ACCEPTANCE INTO SPECIFIC GRADUATE PROGRAMS LEADING TO THE MASTER OF ARTS (M.A.) DEGREE

English

1. Thirty semester hours of undergraduate course work in English beyond the freshmen level, or evidence of equivalent academic preparation for graduate study in English, as approved by the Department of English.
2. A satisfactory score on the Aptitude Portion of the Graduate Record Examination or on the Miller Analogies Test.

Geography

1. An overall grade point average of at least 2.8 (4.0 system) on the last 60 semester hours (90 quarter hours) attempted.
2. A grade point average of 3.0 in the undergraduate major, whatever it may be.
3. A satisfactory total score on the Aptitude Portion of the Graduate Record Examination or satisfactory scores on both the Miller Analogies Test and the Doppelt Test of Mathematical Reasoning.
4. An undergraduate major in geography is *not* required. In order to ensure competence in the basic concepts and methodologies of geography, however, the Department expects each incoming student to either possess or establish a proficiency with materials offered in several undergraduate courses.

   For students in the Location Analysis and the Urban-Regional Analysis and Planning concentrations, these courses are GGY 1105 (Human Location), and GGY 2100 (Maps and Graphs) and GGY 2110 (Research Methods).

   The relevant courses for the Environmental Analysis concentration are ES 1101 (Earth Science-Geography), ES 1102 (Earth Science-Geology), GGY 2100 (Maps and Graphs) and GGY 2110 (Research Methods).

   Deficiencies may be removed after admission by either taking the appropriate course or through examination.

Students may enter during any semester. All applications for admission that satisfy general University admission requirements will be reviewed by a Departmental Graduate Advisory Committee for a final decision. Upon admission, each student will be assigned to an adviser who will work with the student in designing a program of study. All potential applicants are encouraged to visit the Department for an interview.

History

1. All applications for admission must be approved by the Graduate Committee of the Department of History.
2. Although an undergraduate major in history is not required, substantial preparation in history or related fields, i.e., political science, foreign languages, English, will weigh heavily.
3. A satisfactory score is required on the Aptitude Portion of the Graduate Record Examination.
4. The Department reserves the right to admit with specific conditions or to establish prerequisites for admission for applicants who do not clearly meet every requirement for admission.

Mathematics

1. Applicants must present evidence of the satisfactory completion of at least 27 semester hours of mathematics approved by the Departmental Graduate Committee.
2. A satisfactory score is required on the Aptitude Portion of the Graduate Record Examination.
3. It is recommended that the student have a basic knowledge of at least two of the areas of algebra, real analysis, and topology.

Mathematics Education

1. Eighteen hours of approved undergraduate work in mathematics.
2. Evidence of satisfactory scope and grade point average in undergraduate courses in professional education.
3. Possession of a North Carolina Class "A" teacher's certificate or the equivalent. An applicant may be admitted on the condition that he/she satisfy the Class "A" requirements early in his/her course of study. Work applied to the Class "A" deficiency may not be applied toward the degree.

4. A satisfactory score on the Aptitude Portion of the Graduate Record Examination or the combination of the Miller Analogies Test and the Doppelt Test of Mathematical Reasoning.

Psychology

1. A minimum of 18 hours of undergraduate psychology, including general psychology, research methods and statistics.
2. A minimum overall undergraduate grade point average of 2.8 (on a 4.0 scale) and at least a 3.0 average in all psychology courses attempted.
3. Satisfactory scores on the Aptitude and Advanced Psychology portions of the Graduate Record Examination.
4. Three letters of recommendation from professors and/or employers.
5. A statement of professional career goals limited to 500 words.

Sociology

1. An overall undergraduate grade point average of 3.0 (on 4.0 scale).
2. A satisfactory score on the aptitude portion of the Graduate Record Examination or Miller Analogies Test.
3. A minimum of 18 hours of undergraduate courses in social science.

ADDITIONAL REQUIREMENTS FOR ACCEPTANCE INTO SPECIFIC PROGRAMS LEADING TO THE MASTER OF SCIENCE (M.S.) DEGREE

Biology

1. Evidence of undergraduate preparation in biology with a minimum of 24 semester hours in biology and 24 semester hours of cognate sciences.
2. A satisfactory score on the Aptitude Portion of the Graduate Record Examination.

Chemistry

1. A satisfactory score on the aptitude portion of the Graduate Record Examination.
2. Students judged by the Department to be deficient in their training may be admitted conditionally.
3. As an aid in identifying such deficiencies, placement examinations will be given by the Department each semester just prior to registration.
4. Any deficiencies will be removed within one year by remedial study as directed by the Department.

Criminal Justice

1. Each applicant must be approved by the Graduate Committee of the Department of Criminal Justice.
2. A minimum overall grade point average of 2.75 (based on 4.0 system) on all the applicant's previous college work.
3. A percentile score of at least 25 on the Aptitude Portion of the Graduate Record Examination or the Miller Analogies Test.
4. An undergraduate major in criminal justice is *not* required. In order to insure competence in the basic concepts of criminal justice, however, the Department expects each incoming student to either possess or establish a proficiency with the materials offered in the three courses required for undergraduate majors:
   1. CJ 2100—General Criminal Justice
   2. CJ 3100—Criminal Justice Theory
   3. CJ 3101—Research Methods in Criminal Justice

   The Admissions Committee shall assess the academic background of each applicant and, in those cases involving deficiencies in these areas, may indicate remedial action to be required of the student.
5. In addition to the statement of professional career growth and description of any significant work experience, the applicant may provide any written materials which he/she wishes to have considered in the admission decision.

ADDITIONAL REQUIREMENTS FOR ACCEPTANCE INTO THE MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAM

1. A generally satisfactory undergraduate record from an accredited college or university.
2. At least 1000 points on the formula: 200 x the upper division GPA plus the score on the Graduate Management Admissions Test (GMAT) administered by the Educational Testing Service of Princeton, New Jersey.
3. A description of any significant work experience.

Applications should be completed *at least three months* prior to the semester in which the applicant expects to enroll.

ADDITIONAL REQUIREMENTS FOR ACCEPTANCE INTO THE MASTER OF EDUCATION (M.Ed.) DEGREE PROGRAM

1. Students must present evidence of satisfactory scope and grade point average in courses in human development and/or professional education and a satisfactory scope and grade point average in courses appropriate to the cognate concentration.
2. Possession of a North Carolina Class "A" teacher's certificate or the equivalent. Applicants may be admitted on the condition that they satisfy the Class "A" requirements. Work applied to correct the Class "A" deficiency may not be applied toward the M.Ed. degree.
3. A satisfactory score on the Aptitude Portion of the Graduate Record Examination or the Miller Analogies Test.

ADDITIONAL REQUIREMENTS FOR ACCEPTANCE INTO THE MASTER OF HUMAN DEVELOPMENT AND LEARNING (MHDL) DEGREE PROGRAM

1. Students must present evidence of satisfactory scope and grade point average in courses in human development and/or professional education and a satisfactory scope and grade point average in courses appropriate to the cognate concentration.
2. A satisfactory score on the Aptitude Portion of the Graduate Record Examination or the Miller Analogies Test.

ADDITIONAL REQUIREMENTS FOR ACCEPTANCE INTO THE MASTER OF SCIENCE IN ENGINEERING (MSE) PROGRAM

1. Evidence of satisfactory undergraduate preparation in engineering, usually manifested by the possession of a baccalaureate degree in some area of engineering.
2. Applicants with baccalaureate degrees from fields other than engineering (e.g., engineering physics, chemistry, mathematics, etc.) may be considered for admission to graduate study on a conditional basis. In engineering, such an applicant will be required to remove deficiencies in his or her engineering background as delineated by the department of engineering in which the applicant wishes to pursue his or her major area of study.
3. All conditional admissions are subject to the approval of the College's Engineering Graduate Committee (EGC). Also, subsequent evaluation of such students after completion of 12 hours of graduate work is subject to the approval of the EGC, as are requests for readmission.
4. A satisfactory score on the Aptitude Portion of the Graduate Record Examination or on the combination of the Miller Analogies Test and the Doppelt Test of Mathematical Reasoning.
5. Acceptability for admission is based upon the applicant's records and background as determined by the department of the College of Engineering in which the applicant wishes to pursue his or her major area of study. The department has the prerogative to accept the applicant without reservation, to accept the applicant with conditions, or to reject the applicant. Any conditions are to be clearly stated and agreed to by the applicant before admission is completed.

ADDITIONAL REQUIREMENTS FOR ACCEPTANCE INTO THE MASTER OF SCIENCE IN NURSING (MSN) DEGREE PROGRAM

1. Current licensure as a Registered Nurse in North Carolina.
2. Baccalaureate degree from a National League for Nursing accredited nursing program.

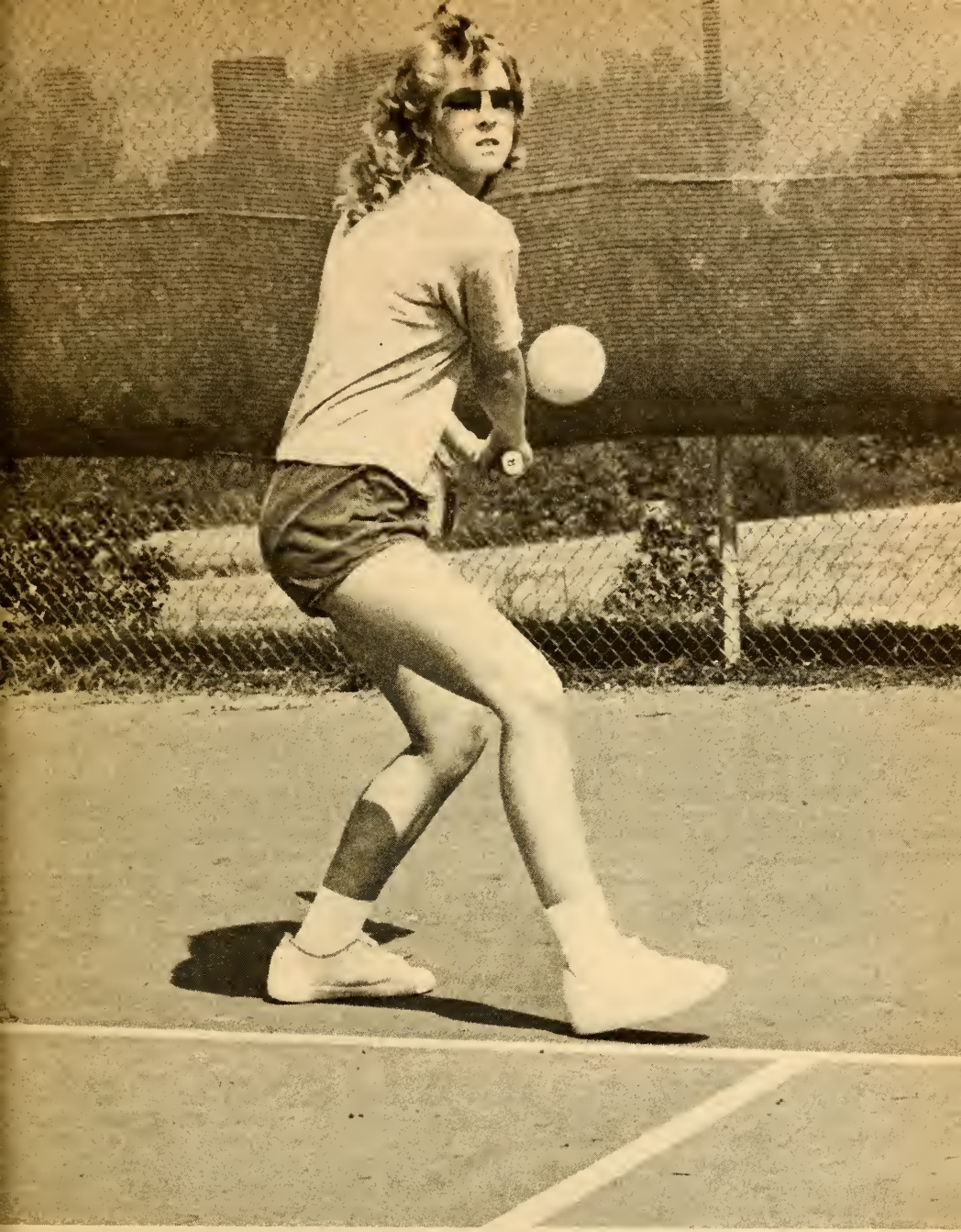
3. A score of at least 1000 on the aptitude portion of the Graduate Record Examination with at least 400 on both the verbal and quantitative tests.
4. One year of professional nursing practice.
5. An overall grade point average of at least 3.0 (in a 4.0 system) on the last 60 semester hours attempted.
6. A grade point average of at least 3.0 in the Nursing major.
7. Completion of baccalaureate courses in statistics and research methods with a grade of *C* or better.
8. Three letters of recommendation including one from most recent employer and one from an instructor in the baccalaureate program from which the student graduated, and one other professional reference.

ADDITIONAL REQUIREMENTS FOR ACCEPTANCE INTO THE MASTER OF URBAN ADMINISTRATION (MUA) DEGREE PROGRAM

1. A percentile score of at least 25 on the Aptitude Portion of the Graduate Record Examination or on the Miller Analogies Test.

NOTE:

Acceptance into one graduate program does not guarantee acceptance into any other program. Acceptance into each program must be approved by the department or college offering the program.



Financial Information

Student Expenses and Fee Payment

Charges for tuition and fees vary according to the student's status as a resident or nonresident of North Carolina. A nonresident student must pay a higher rate of tuition than a legal resident.

The University reserves the right to make, with the approval of proper authorities, changes in tuition and fees at any time.

STUDENT EXPENSES

Graduate students taking nine or more semester hours and undergraduate students taking 12 or more semester hours of work during a regular semester will be charged full tuition and fees. Students taking fewer than the nine hours for graduates and 12 hours for undergraduates will be charged a prorated portion of tuition and fees as specified in the fee schedules on page 49.

Costs for the regular academic year for a typical full-time North Carolina student are $700 in tuition and fees and $2,016 to $2,366 for housing and food, depending on the options chosen. For a typical out-of-state student, annual tuition and fees are $3,258.

The estimated average cost of books and supplies per semester varies by area and level of study and ranges from $75 to $190. Beginning students in architecture and engineering should allow an additional expense of $100 to $150 for drawing instruments, calculator and supplies. Uniforms and supplies for nurses cost approximately $150.

In addition to the above, the student should take into consideration the cost of clothing, snacks, recreation, laundry, transportation, etc., in planning his/her expenses for each semester.

FEE PAYMENT

Tuition and fees are due and payable on the day of registration. Advance registration billing and due dates of fees vary with the term. Checks and money orders should be made payable to the University of North Carolina at Charlotte. Visa and Master-Card are accepted.

Returned Check Policy. In the event that a check is returned by the bank, a certified letter will be sent to the maker, informing him/her that a penalty of $10 has been assessed and the account must be settled within ten (10) working days or The University will consider the check to be a bad check and will process it accordingly. A hold will be placed on the student's record until the bad check is covered and the penalty is paid. The student will also be dropped from enrollment for the current session and will not be allowed to re-enroll until the check is cleared.

Tuition and Fees

RESIDENCE STATUS FOR TUITION PURPOSES

The basis for determining the appropriate tuition charge rests upon whether a student is a resident or a nonresident for tuition purposes. Each student must make a statement as to the length of his or her residence in North Carolina, with assessment by the institution of that statement to be conditioned by the following:

Residence. To qualify as a resident for tuition purposes, a person must become a legal resident and remain a legal resident for at least 12 months immediately prior to classification. Thus, there is a distinction between legal residence and residence for tuition purposes. Furthermore, 12 months legal residence means more than simple abode in North Carolina. In particular it means maintaining a domicile (permanent home of indefinite duration) as opposed to "maintaining a mere temporary residence or abode incident to enrollment in an institution of higher education." The burden of establishing facts which justify classification of a student as a resident entitled to in-state tuition rates is on the applicant for such classification, who must show his or her entitlement by the preponderance (the greater part) of the residentiary information.

Initiative. Being classified a resident for tuition purposes is contingent on the student's seeking such status and providing all information that the institution may require in making the determination.

Parents' Domicile. If an individual, irrespective of age, has living parent(s) or court-appointed guardian of the person, the domicile of such parent(s) or guardian is, prima facie, the domicile of the individual; but this prima facie evidence of the individual's domicile may or may not be sustained by other information. Further, nondomiciliary status of parents is not deemed prima facie evidence of the applicant child's status if the applicant has lived (though not necessarily legally resided) in North Carolina for the five years preceding enrollment or re-registration.

Effect of Marriage. Marriage alone does not prevent a person from becoming or continuing to be a resident for tuition purposes, nor does marriage in any circumstance insure that a person will become or continue to be a resident for tuition purposes. Marriage and the legal residence of one's spouse are, however, relevant information in determining residentiary intent. Furthermore, if both a husband and his wife are legal residents of North Carolina and if one of them has been a legal resident longer than the other, then the longer duration may be claimed by either spouse in meeting the 12-month requirement for in-state tuition status.

Military Personnel. A North Carolinian who serves outside the State in the armed forces does not lose North Carolina domicile simply by reason of such service. And students from the military may prove retention or establishment of residence by reference, as in other cases, to residentiary acts accompanied by residentiary intent.

Personnel permanently stationed on active military duty in North Carolina and their dependents are eligible for in-state tuition rates. Eligibility to be charged in-state tuition rates must be established through submission of an institutional application.

Grace Period. If a person (1) has been a bona fide legal resident, (2) has consequently been classified a resident for tuition purposes, and (3) has subsequently lost North Carolina legal residence while enrolled at a public institution of higher education, that person may continue to enjoy the in-state tuition rate for a grace period of 12 months measured from the date on which North Carolina legal residence was lost. If the 12 months ends during an academic term for which the person is enrolled at a State institution of higher education, the grace period extends, in addition, to the end of that term. The fact of marriage to one who continues domiciled outside North Carolina does not by itself cause loss of legal residence, marking the beginning of the grace period.

Minors. Minors (persons under 18 years of age) usually have the domicile of their parents, but certain special cases are recognized by the residence classification statute in determining residence for tuition purposes.

(a) If a minor's parents live apart, the minor's domicile is deemed to be North Carolina for the time period(s) that either parent, as a North Carolina legal resident, may claim and does claim the minor as a tax dependent, even if other law or judicial act assigns the minor's domicile outside

North Carolina. A minor thus deemed to be a legal resident will not, upon achieving majority before enrolling at an institution of higher education, lose North Carolina legal residence if that person (1) upon becoming an adult "acts, to the extent that the person's degree of actual emancipation permits, in a manner consistent with bona fide legal residence in North Carolina" and (2) begins enrollment at an institution of higher education not later than the fall academic term next following completion of education prerequisite to admission at such institution."

(b) If a minor has lived for five or more consecutive years with relatives (other than parents) who are domiciled in North Carolina and if the relatives have functioned during this time as if they were personal guardians, the minor will be deemed a resident for tuition purposes for an enrolled term commencing immediately after at least five years in which these circumstances have existed. If under this consideration a minor is deemed to be a resident for tuition purposes immediately prior to his or her eighteenth birthday, that person on achieving majority will be deemed a legal resident of North Carolina of at least 12 months duration. This provision acts to confer in-state tuition status even in the face of other provisions of law to the contrary; however, a person deemed a resident of 12 months duration pursuant to this provision continues to be a legal resident of the State only so long as he or she does not abandon North Carolina domicile.

Lost but Regained Domicile. If a student ceases enrollment at or graduates from an institution of higher education while classified a resident for tuition purposes and then both abandons and reacquires North Carolina domicile within a 12-month period, that person, if he or she continues to maintain the reacquired domicile into re-enrollment at an institution of higher education, may re-enroll at the in-state tuition rate without having to meet the usual 12-month durational requirement. However, any one person may receive the benefit of this provision only once.

Change of Status. A student admitted to initial enrollment in an institution (or permitted to re-enroll following an absence from the institutional program which involved a formal withdrawal from enrollment) must be classified by the admitting institution either as a resident or as a nonresident for tuition purposes prior to actual enrollment. A residence status classification once assigned (and finalized pursuant to any appeal properly taken) may be changed thereafter (with corresponding change in billing rates) only at intervals corresponding with the established primary divisions of the academic year.

Transfer Students. When a student transfers from one North Carolina public institution of higher education to another, he or she is treated as a new student by the institution to which he or she is transferring and must be assigned an initial residence status classification for tuition purposes.

Appeal Procedure. A student may request a review of decisions by the Admissions Office or Office of the Registrar relating to in-state or out-of-state residence for tuition purposes through the Auxiliary Services Office. Appeals should be submitted in writing, stating all the pertinent facts. Backup material should accompany the appeal. Address, telephone number and social security number should be included with the appeal.

Summary of Tuition and Fees Per Semester

Following are tuition and fees authorized for **1984-85.** *They are subject to change by the appropriate authorities.*

UNDERGRADUATES			GRADUATES*		
	Resident	Non-Resident		Resident	Non-Resident
0 Hrs.	$ 76.00	$ 396.00	0 Hrs.	$ 76.00	$ 396.00
			0 Hrs. (Thesis Only)	85.00	170.00
1-5 Hrs.	76.00	396.00	1-2 Hrs.	76.00	396.00
6-8 Hrs.	167.50	806.50	3-5 Hrs.	128.00	767.00
9-11 Hrs.	299.00	1258.00	6-8 Hrs.	218.50	1177.50
12 or more Hrs.	350.00	1629.00	9 or more Hrs.	350.00	1629.00

Post-baccalaureate students who are taking* **only *undergraduate courses will pay tuition and fees at the undergraduate rate. Post-baccalaureate students taking one or more graduate credit courses will pay tuition and fees at the graduate rate for* **all** *courses.*

Room and Board Per Semester

Residence Hall Apartment	$647.00 to $692.00
Residence Hall—Double Room	$526.00
Residence Hall—Single Room (if available)	$785.00
Meal Plan A—5 Day	$482.00
Meal Plan B—7 Day	$522.00
Meal Plan C—10 Meals per week	$398.00

Note: Residence hall space is not available to married or part-time students.

Special Assessments (per Semester except where indicated otherwise)

Creative Arts Fee	$35.00 to $50.00
Nursing Malpractice Insurance (per academic year)	$12.50
National League for Nursing Achievement Test (per-test)	$ 5.00
Scuba Diving (PED 219)	$60.00
Advance Scuba Diving (PED 220)	$35.00
Physical Education Course Fees	
First Course	$15.00
Each Additional Course	$ 6.00
Engineering Cooperative Experience Fee	$51.00
Engineering Laboratory Fee	$25.00
Biology Lab (upper level)	$15.00
Biology Lab (lower level)	$10.00
Chemistry Lab (upper level)	$15.00
Chemistry Lab (lower level)	$10.00
Earth Science Lab (upper level)	$15.00
Earth Science Lab (lower level)	$10.00
Computer Science Lab (upper level)	$15.00
Computer Science Lab (lower level)	$10.00
Physics Lab (upper level)	$15.00
Physics Lab (lower level)	$10.00

Other Fees

Application Fee	$15.00
New Student Fee (Undergraduates only)	$13.00
Late Registration Fee	$10.00
Graduation Fee	$18.00
Credit By Exam	
Written Exam	$15.00
Laboratory Exam	$25.00
Combination Written & Laboratory Exam	$30.00
Motor Vehicle Registration Fee (per academic year)	$30.00

SPECIAL ASSESSMENTS

Many courses carry special assessment fees to cover the cost of supplies or special material consumed in the courses or labs. A complete list of special assessments can be found on page 49.

Application Fee. Applicants for admission are required to submit a $15 application fee with the application form. The fee is not deductible and is not refundable.

New Student Fee. All new degree-seeking undergraduate students (freshmen and transfers) will be required to pay a one-time $13 new student fee.

Housing Deposit. Admission to UNCC does not guarantee residence hall space. Arrangements for on-campus housing are made, after admission, with the director of residence life. See the Correspondence Directory on the inside front cover for the proper address. On-campus housing is not available for married or part-time students.

All housing applications must be submitted with a $100 deposit. The deposit is refundable, minus any outstanding damages and charges, upon departure from the residence life system. No deposit refunds for fall semester are made after June 1. No refunds for spring semester are made after November 30.

All students living in the residence halls will have an $8 Residence Hall Association fee included in their semester housing charges.

Student Activities Fee. A part of the general fee provides students with a program of cultural, recreational and entertainment activities. It pays for admission to many athletic contests, dramatic productions, activities sponsored by the University Program Board, social and entertainment functions, and for subscriptions to the campus newspaper and literary magazine.

Graduation Fee. Each member of the graduating class must pay a graduation fee of $18 at the time he/she applies for the degree. This fee includes the cost of the diploma and the rental of the cap and gown. No reduction of the fee is allowed for those receiving degrees *in absentia*. For graduate students, the cost of renting a hood is in addition to the $18 charge.

Late Registration Fee. A fee of $10 will be charged for those registering after the designated registration period each semester. *This fee is not refundable.*

Applicants completing their applications before the initial registration day but whose applications could not be processed in time will not be assessed the late registration fee if required to register late.

Credit By Examination Fee. Fees for credit by examination are as follows: A written examination for a course will require a fee of $15. A laboratory examination requiring the arrangement of such things as laboratory materials will require a fee of $25. A combination of a laboratory and written examination will require a fee of $30.

MOTOR VEHICLE REGISTRATION FEES

Students attending The University are required to register their motor vehicles(s) in order to park such vehicles on campus. Only vehicles owned by students, spouse, parent(s), or guardians may be registered. Unless increased by the chancellor, the number of vehicles which a student may register is two. Presentation of State vehicle registration or appropriate proof of ownership shall be required.

Registration of motor vehicles is to be accomplished as part of the University registration at the beginning of the fall semester of each year or at the time when the student first registers in The University and at the beginning of the fall semester of each year thereafter. A motor vehicle acquired by a student during a semester is to be registered.

The motor vehicle registration fee for students, faculty and staff members is as follows:*

$30 per academic year beginning with the fall semester;

$18 for the period beginning with the spring semester and ending with the beginning of the next fall semster;

$12 for the period beginning with a summer term and ending with the beginning of the next fall semester;

$10 for each semester, fall and spring and summer, in parking areas designated for night students after 4 p.m.;

$ 2 for one additional motor vehicle;

$ 1 for a replacement sticker from one category to another with presentation of residue of old decal.

**Fees are subject to change*

Night decals are available and are valid in any lot after 4 p.m. Cars with night decals must be parked at meters or toll gates from 8 a.m. to 4 p.m.

Temporary Parking Permits. Temporary parking permits are available for persons with cars registered on campus but who are required to drive a non-registered car for a short period while the registered car is being repaired, for new employees prior to receipt of first paycheck and for short-term visitors of resident status.

Penalties for Parking Violations. Violators of University Parking Regulations will incur a civil penalty of $3, $5, $10 or $15, depending on the seriousness of the violation. If not paid in five days, the penalty will be doubled and applied to the member's account with the University and collectable as a bad debt. Subsequent registration may be withheld for non-payment.

Appeals of traffic and parking citations may be filed in accordance with the statement of procedures on file in the Office of the Director of Public Safety.

Refunds

TUITION AND FEES REFUNDS

A student who officially withdraws from the University will receive a refund as follows:

a. During the first two weeks of the semester, a 90 percent refund of tuition and fees.

b. During the third and fourth weeks of the semester, a 40 percent refund of tuition and fees.

c. After the first four weeks, tuition and fees are not refundable.

Exception: Charges are refundable by administrative action on a prorata basis for the unexpired portion of the term for the following reasons: death of the student, withdrawal for adequate medical reason as certified by the University student health center or family doctor, death in the immediate family which necessitates student withdrawing and dismissal or suspension from school. Appropriate documentation must be submitted to the registrar.

Summer School: A student who officially withdraws from the University as indicated below will receive a refund of the full amount paid less a registration fee of $10; regular summer session, during the first *five* class days; three week session, during the first *three* days; two week session, during the first *two* class days. One half of the total housing charge is refundable during the first half of a summer session. No other refunds are authorized except as follows: death of student, withdrawal for adequate medical reason as certified by the University student health center or family doctor, death in the immediate family which necessitates student withdrawing, and dismissal or suspension from school.

HOUSING REFUNDS

The rental period is for the entire academic year (fall and spring semesters) continuing until the end of the spring semester, regardless of occupancy date after the fall semester begins. Students may terminate at the end of the fall semester with no penalty only by written notification to the Residence Life Office by 5 p.m. Nov. 30. The housing and dining agreement binds the student and/or guarantor to the full amount of charges for the academic year except as noted below:

Effect of Cancellation:

If cancellation date is:	*Student is charged:*
a. By 5:00 p.m. June 1 for fall semester or 5:00 p.m. November 30 for spring semester	No charge (deposit refunded)
b. From June 1 to day before published housing opening date (fall): or December 1 to one day prior to housing opening date (spring)	$100 (for forfeiture of deposit)
c. Housing opening date to end of semester.	Housing fee for entire semester

NOTE: Withdrawals from UNCC for academic or medical reasons will be refunded based on a pro-rata share of housing and dining.

Appeal Procedure

Appeals to the above policy should be submitted in writing to Auxiliary Services, UNCC, Charlotte, NC 28223, or to the office in 422 Reese Building.

Financial Aid

UNCC administers financial aid without regard to race, color, national origin, religion, sex, age or handicap.

The University offers a comprehensive program of student financial aids (scholarships, grants, loans and part-time employment) to assist both graduate and undergraduate students in meeting educational expenses. Reasonable educational expenses include tuition and fees, room and board, books, supplies, transportation, miscellaneous personal expenses and expenses related to maintenance of a student's dependents.

Eligibility. The programs of student financial aid are administered according to a nationally accepted policy that the family, meaning parents (or those acting in place of parents) and/or spouse, is responsible for a student's educational expenses. Therefore, eligibility for financial aid will be determined by a comparison of a budget (educational expenses as defined above) for the period of attendance with what the student's family can reasonably be expected to contribute.

A financial aid applicant will be considered for available assistance for which he/she is eligible if the student:

1. Completes the application process and related forms only after thoroughly reading all instructions.
2. Completes the admission application process and is accepted for enrollment at UNCC.
3. Is working toward a degree and not simply taking courses.

APPLICATION PROCESS

It is necessary to complete one form to apply for the following programs:

Pell Grants (Undergraduates only)
Supplemental Educational Opportunity Grant
UNCC Grants
North Carolina Student Incentive Grant (NCSIG)
National Direct Student Loan
Nursing Loan
UNCC Loans
College Work-Study Program
UNCC Scholarships

To apply for these programs, a student *must complete the Financial Aid Form of the College Scholarship Service* and mail it to that organization in Princeton, New Jersey. These forms are available in the UNCC Financial Aid Office and in high school counseling offices.

Certain UNCC scholarships require special application forms, which are available in the UNCC Student Financial Aid Office.

RENEWAL PROCESS

Renewal of financial aid is based upon a student's making a clearly satisfactory record. The Financial Aid Form will be required each year that a student applies for financial aid.

FINANCIAL AID PROGRAMS

Loans

National Direct Student Loan—Applicants may request amounts based on financial need up to a total of $6,000 for a four-year degree and an aggregate total of $12,000 for graduate study. The interest rate is five percent, with repayment beginning six months after graduation. To apply, an individual must complete the Financial Aid Form.

Guaranteed Student Loans—Qualified undergraduate applicants may borrow up to $2,500 per year for educational expenses. Graduate students who qualify may borrow up to $5,000. The interest rate throughout the life of the loan is eight per cent per annum, simple interest. Repayment begins after a student completes his course of study or leaves school. The maximum repayment period is 10 years, although minimum repayment requirements may reduce this.

Short-Term Emergency Loans—Students may borrow up to $100 for unanticipated expenses which occur during the semester and up to $400 for tuition and book expenses. The loans have a $1 service charge, but no interest is charged. Loans must be repaid within 30 to 60 days. Funds for these loans are privately donated and include the following:

Alpha Delta Kappa, N.C. Alpha Chapter
Charlotte—North Rotary Club
R.P. Stephen Davis Memorial Fund
English Graduate Student Loan Funds
Housewares Club of the Carolinas
International Student Loan Fund
Kappa Alpha Psi Fraternity
Marlin McCasland Memorial Fund
Ada Pearson Fund
Schoenith Student Loan Fund
UNCC Women's Organization

Student Financial Services—This office is financed and operated by the Student Government Association and offers check cashing privileges.

Grants

Pell Grants—These are for undergraduate students and can range from $250 to $1,900, based on the student's financial need, state residence and other costs of attendance. It is an entitlement program, meaning that any student who applies and is determined to be eligible will receive funds.

Supplemental Educational Opportunity Grant—These are for undergraduate students and range from $200 to about $1,000. Eligibility is based on financial need and is determined within the UNCC Financial Aid Office.

North Carolina Minority Presence Grant Program—Under the University of North Carolina Board of Governors general Minority Presence Grant Program, black students may be eligible for special financial assistance if they are residents of North Carolina, enrolled for at least three hours of degree-credit course work, and demonstrate financial need.

UNCC Grants—UNCC administers several other grant programs funded by the State of North Carolina and requires North Carolina residency for consideration. These are available to both graduate and undergraduate students.

Graduate Assistantships. The University has a limited number of graduate assistantships in the fields of biology, business administration, chemistry, engineering, English, political science, mathematics, geography, history and education. Such financial support will be extended to other areas of study as rapidly as resources become available. Application for a graduate assistantship should be filed in writing with the appropriate department through the Admissions Office not later than the February preceding the fall semester for which the assistantship is desired.

Graduate Fellowships. The Microelectronics Center of North Carolina (MCNC) has allocated a limited number of $12,000 fellowships to UNCC for outstanding students in graduate programs relevant to microelectronics. Information about MCNC Fellowships is available from the Admissions Office.

Employment. The Office of Student Financial Aid assists students in locating work on campus. The University participates in the federal Work-Study Program and attempts to match students with jobs related to their academic interests. Graduate students as well as undergraduate students may request University employment. However, all graduate students seeking employment must have the approval of their department heads.

The Placement Office assists students in obtaining part-time, full-time or summer employment off campus and, whenever possible, endeavors to relate work experience to career objectives. Job listings and assistance are available in the Job Location and Development Office, Room 123, King Building. (See more detailed statement under *Placement,* page 15.

Education For The Vocationally Handicapped. Students who have suffered a disability which renders them vocationally handicapped are eligible for aid provided by the North Carolina State Division of Vocational Rehabilitation. This aid takes the form of services which include vocational counseling and guidance and placement. Payment of expenses such as training, medical treatment, room and board, books, fees and tuition may be available. A vocational rehabilitation officer is available in Charlotte for interviewing applicants. Appointments may be made by contacting the Vocational Rehabilitation Office located at 1928 E. Independence Blvd., 375-8686.

Veterans Benefits. The Office of the Registrar works with the Veterans Administration to assist in administering the various programs of benefit to veterans or eligible relatives of veterans. The veterans clerk in the Registrar's Office certifies enrollment and transmits necessary credentials and information to the proper Veterans Administrative Office.

Admission to the University should be obtained before the student makes application for veteran's benefits. Application for a Certificate of Eligibility should be made to the nearest Veterans Administration Regional Office at least six weeks before the expected date of enrollment.

In order to be eligible for the full monthly allowance under any of the above laws, an undergraduate student must be enrolled for 12 or more semester hours of work, while a graduate student must be enrolled for nine or more semester hours. Those enrolled for fewer semester hours than the limits stated above will be eligible for part-time compensation. Students are responsible for reporting any change in enrollment status to the veterans clerk in the Office of the Registrar.

Children of Veterans. The North Carolina Department of Veterans Affairs awards scholarships for the children of certain deceased or disabled veterans. Those awarded "full" scholarships are entitled to tuition, mandatory fees, board allowance and room allowance; those awarded "limited" scholarships are entitled to tuition and mandatory fees. All inquiries should be referred to the North Carolina Division of Veterans Affairs, 227 East Edenton St., Raleigh, North Carolina 27601, telephone, 919/733-3851.

Before the time of registration, each eligible student who wishes to enter the University should:

1. Make application for admission following University procedures.
2. Make application for scholarship award to the North Carolina Department of Veterans Affairs.

Scholarships. UNCC offers a comprehensive undergraduate scholarships program. Some of these are awarded entirely on the basis of merit, but individual financial need is a consideration in the awarding of many of them. The University's major merit awards are the Alumni Scholarships, the Cameron Scholar Awards, the Colvard Scholarships and the Bonnie E. Cone Scholarships.

The *Alumni Scholarships for Merit,* awarded for the first time in 1978, will be awarded annually to continuing students of the University who have proven outstanding scholastic attainment, participated in University and/or community activities, and demonstrated campus leadership. The scholarships were established to recognize outstanding full-time students and to encourage their continuing involvement and interest in the activities of the University. Information concerning the scholarships will be distributed to each department and college within the University each year prior to the award and will contain material outlining application procedures for the scholarships.

The *C.C. Cameron Scholars* program, established by First Union Corp., honors Mr. C.C. Cameron, who served as chairman of First Union and as chairman of the UNCC Board of Trustees.

The purpose of the Cameron Scholars program is to bring outstanding students to the University of North Carolina at Charlotte. Recipients will be selected on the basis of academic achievement, demonstrated leadership and service to others. Cameron Scholars will be provided financial assistance and work experiences which will encourage intellectual growth and stimulate the will to achieve full potential.

The *Colvard Scholarships for Merit* honor Dr. Dean Wallace Colvard, first chancellor of the University of North Carolina at Charlotte, and his wife, Martha, who were instrumental in founding Friends of UNCC. Dr. and Mrs. Colvard have personified the quest for excellence at UNCC.

The Colvard Scholarships for merit will be awarded to applicants judged on the basis of their achievements in high school, college aptitude tests and their promise of making meaningful contributions to society. Their roles as leaders and their service to school and community will be weighed carefully.

The *Bonnie E. Cone Scholarships for Merit* have been endowed by Clara McKay (Mrs. Charles H.) Stone of Charlotte and other friends of Charlotte College. The scholarships honor Dr. Bonnie E. Cone, founder and developer of Charlotte College, upon which base the University of North Carolina at Charlotte grew.

The Bonnie E. Cone Scholarships for Merit are awarded annually to students having high moral character and proven scholastic attainment and whose further education at The University will, in the judgment of the scholarship committee, enhance the citizenship of the recipients and advance the service of the University of North Carolina at Charlotte as an institution of excellence. A student may be recommended by the high school principal or community college president to be eligible for this scholarship.

The *Cameron Morrison Scholarships,* first awarded in 1985, were established as a memorial to former Governor and Mrs. Cameron Morrison. The scholarships recognize those students who are public high school graduates from Mecklenburg and Richmond Counties who seek self improvement and demonstrate initiative and ability. The awards also are based on financial need and 40 awards of $500 each are made annually. To receive consideration, students must complete the general University application for financial assistance. Continuing students with a 3.0 or higher cumulative grade point average and entering students ranking in the upper 10 percent of their high school graduating class will be given preference.

Detailed information about the Cameron, Colvard, Cone and Morrison Scholarships, minimum qualifications, selection processes and the amount of the stipends may be obtained from the Office of Student Financial Aid at UNCC.

In most cases, there is no special application for the scholarships which follow, and all aid applicants will be considered unless the scholarship is noted as an exception. Normally, those students with demonstrated need and a grade point average of 3.5 or better will be considered for scholarships.

Betty Adkins Memorial Scholarship
** Afro-American Studies Scholarship
** Air Force ROTC
** Alcoa Foundation
Allendale Services, Inc.
Alpha Chapter of Alpha Delta Kappa
Alpha Sigma Chapter of Delta Kappa Gamma

**Require a special application.*
***These scholarships are awarded on recommendation by committees in the academic departments and may require a special application.*

Altrusa Club of Charlotte
* Alumni Scholarships
American Business Women—Charlotte Heritage Chapter
American Business Women—Carolina Charter Chapter
American Business Women—Mecklenburg Chapter
American Business Women—Queen Charlotte Chapter
American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc.
American Society for Metals
** American Society for Quality Control
Paul Anthony Memorial Scholarship
** Army ROTC
J. Murrey Atkins Scholarship
Brycie Baber Scholarships
Harold Crusius Bird
Tom Black Memorial Scholarship
* Blair-Boone-Dudley Scholarships
R.G. Brice Scholarships
* C.C. Cameron Scholarships
* Cannon Mills Company Scholarship
Cannon Scholarship for Nursing
Carolina Paper Board
Carolina Yarn Association
Carrousel Award
Wayland Cato, Jr. Scholarship
Charlotte Association of Insurance Women
Charlotte Board of Realtors
Charlotte Business and Professional Women
Charlotte Civitan Club
** Charlotte Engineers Club Scholarship
** Charlotte Kiwanis Scholarships
Charlotte-Mecklenburg—NCEA
Charlotte North Rotary Club Student Loan Fund
Charlotte Panhellenic Congress
Charlotte Rotary Club
The Charlotte Women's Auxiliary of the NC Pharmaceutical Association
** Chick Fil-A of Southpark Scholarship in Philosophy
** Ruth C. Clarke Scholarships in Nursing
* The Dean and Martha Colvard Scholarships
* Bonnie E. Cone Scholarships
Bonnie E. Cone by Altrusa Scholarship
** Creative Arts General Scholarship
** Creative Arts Music Scholarship
** Creative Arts String Scholarship
** Creative Arts Theatre Scholarship
Jim Crockett Memorial Loan
** Crowder Construction Scholarships
** Cunningham Brick Scholarship
** Sanford V. Davenport Scholarships
** DeLoitte Haskins & Sells Scholarship
Delta Kappa Gamma
Delta Delta Delta
** Duff-Norton Engineering
Duke Power Company Engineering Scholarships
Engraph, Inc.
** Engineering Students (Minority) National Fund
** English Graduate Loan Fund
** Ernst & Whinney Accounting Scholarship
Executive Women International
Henry B. Fowler Memorial
James Edward Fox Scholarship
** French Scholarship
Garinger Scholarship
Otto L. Giersch Scholarship
** Joris E. Gilbos French Scholarship
** Joris E. Gilbos German Scholarship
Miley Columbus Glover Memorial
Nicholas T. Goudes Foreign Language Scholarship
Greek Ladies Philoptochos Society Scholarship
Bronna Watson Hackney Scholarship in Nursing
Harry P. Harding Scholarship
Ailene S. Harris Engineering Scholar
Harris-Teeter Enterprise Scholarship
Harrison-Wright Scholarship
Henkel Corp., Foreign Languages Scholarships
Homelite Contractors Pump Scholarship
International World Trade Scholarship
** Jefferson Pilot Foundation Scholarship
Jeld-Wen-Wenco Scholarship
Junior Achievement
** Katapodis Award
** Kokenes Award
Lake Forest Garden Club
Lambda Chi Alpha's Witherspoon Scholarship in Religious Studies
E. Dunbar Jewell and Associates Scholarship
** LUWA Corporation Engineering Scholarship
McEwen Scholarships
** Mecklenburg General Contractors Association Scholarship
** Pierre Macy Scholarship
William Hugh McEniry Memorial Award
* Mecklenburg County Medical Society
Cal and Fay Mitchell Scholarship
Cameron Morrison Scholarships
** Mumaw Engineering

*Require a special application.
**These scholarships are awarded on recommendation by committees in the academic departments and may require a special application.

Mutual Savings and Loan of Charlotte, NC, Scholarship in Business Administration
** National Association of Accountants—Herbert Conner Scholarship
National Gypsum Company—Gold Bond Building Products Division Scholarship
** North Carolina Association of the American Institute of Certified Public Accountants Charlotte Chapter
North Carolina Sheriff's Association Scholar
North Carolina Association of Supervisors of Elections
Samuel Iredell Parker Scholarships
The Artemis J. Paschal Scholarships
** Lynn Hauser Pearce Memorial Scholarships
J.N. Pease Associates Engineer Scholarships
** Peat, Marwick, Mitchell Accounting Scholarship
Piedmont-Carolinas Chapter of the Institute of Internal Auditors
Piedmont Club Foundation
Pilot Club of Charlotte
** Pneumafil Engineering Scholarship
** Price Waterhouse Foundation
Cecil Prince Scholarship
** Professional Engineers Association—South Piedmont Chapter
** Professional Engineers—Ladies Auxiliary
** Provost-Firpo French Scholarship
Puette Scholarship
Quota Club of Charlotte
The Ramseur Tutoring Fund
George A. Rawlings Scholarship
Refabco, Inc. Scholarship
** Ramsey Products Engineering Scholarship
** Rexham Corporation
Kathy Reynolds Scholarship in Athletics
Roger Reynolds Scholarship in Business
George H. Roberts
Glen G. Ritchie, Jr. Memorial Scholarship
** Rodgers Builders, Inc., Scholarships
** Touche Ross and Company
** Oliver Rowe Scholarship
Servomation of Charlotte
Sheldon P. Smith Scholarships
Lonnie Sides Memorial
Sodyeco, Inc. Scholarship
** Southern Engineering Scholarship
** Spanish Scholarship
Joseph Carl Stepp Memorial
Jan Stewart Scholarship
Charles H. and Clara Stone Scholarship
Suther Scholarship
A.K. Sutton Scholarships
Margaret M. Sutton Scholarship
* Tate Culbertson Scholarships
C.M. and M.D. Suther Scholarship
Mr. and Mrs. J.R. Thompson
Travelers Insurance Scholar
UNCC Women's Organization
UNCC Bookstore Scholarship
** Robert M. Wallace Award
Lettie Pate Whitehead Scholarships
Earle Whitton Scholarship
Mr. and Mrs. J.L. Winningham
** B.W. Witherspoon Air Force ROTC Award
** B.W. Witherspoon Army ROTC Award
* Joe A. Witherspoon Scholarship
Women's Allied Auxiliary of N.C. Motor Carriers
World Trade Scholarship
Zeta Tau Alpha Foundation
Zonta Club of Charlotte

*Require a special application.
**These scholarships are awarded on recommendation by committees in the academic departments and may require a special application.

Academic Regulations and Degree Requirements

Student Responsibility

Every student is responsible for the proper completion of his/her academic program, for familiarity with the *University Catalog,* for maintaining the grade average required and for meeting all other degree requirements. The adviser will counsel, but the final responsibility remains that of the student.

A student is required to have knowledge of and observe all regulations pertaining to campus life and student deportment. He/she is responsible for maintaining communication with the University by keeping on file with the Registrar's Office at all times a current address, including zip code and telephone number.

Every student, while associated with the University, is expected to comport himself/herself in campus and community life in a manner that will reflect credit upon the student and the University.

Academic Regulations

ASSIGNMENT OF ACADEMIC ADVISERS

Each student entering a degree program at the University of North Carolina at Charlotte is assigned an academic adviser or advisory committee in his/her major field. Advisers are also provided for students who have not yet chosen a major field. The adviser assists the student to develop the plan of study best suited to his/her prior preparation and objectives. This assistance is not a substitute for the personal responsibility of the student described in the preceding section.

CATALOG POLICIES

The *Catalog* is not an irrevocable contract. Regulations published in it are subject to change by The University at any time without notice. University regulations are policy statements to guide students, faculty and administrative officers in achieving the goals of the institution. Necessary interpretations of these policies will be made by the appropriate authorities with the interest of the students and the institution in mind. Students are encouraged to seek information as they require it about the application of any policy.

Each new edition of the catalog becomes effective at the opening of the fall semester following its publication. To receive a degree, an undergraduate student must complete satisfactorily all requirements described in the catalog in effect at the time of first enrollment as a degree student at The University or all requirements described in the catalog in effect at the time of graduation. A graduate student must complete satisfactorily all requirements described in the catalog in effect at the time of first enrollment as a degree student or all requirements described in the catalog in effect at the time of admission to degree candidacy. Any student who changes from one curriculum to another curriculum must meet catalog requirements of the new curriculum in effect at the time of the change. Any student who leaves The University or changes to another curriculum for a period of one calendar year or longer and then returns to The University or to the original curriculum will be required to meet catalog requirements in effect at the time of return.

Exceptions to these policies may be necessitated by changes in course offerings, degree programs or by action of authorities higher than The University. In that event, every effort will be made to avoid penalizing the student.

REGISTRATION

The registration process takes place on designated days at the opening of each semester and each summer term prior to the beginning of classes. In addition, students who are already enrolled are given the opportunity to register in advance for the subsequent term during each regular semester. New undergraduate students who participate in one of the summer orientation and advising sessions are registered for the following fall semester during the session.

Late Registration. Late registration takes place on designated days after the beginning of classes each term. Except under special conditions, no student will be permitted to register after the last day of late registration as announced in the calendar for each semester and summer term. A late registration fee will be charged.

Registration for Credit. No credit will be awarded to a student for a course unless he/she is properly registered for it. Graduate credit will not be awarded unless the student is properly registered in a course which has been approved for graduate credit.

Adding or Dropping a Course. In order to add or drop a course after the registration period, a student must secure written permission from his/her adviser and complete the procedure as prescribed by the Registrar's Office. No student will be permitted to add a course or change sections of a course after the last day of late registration as announced in the calendar for each semester and summer term.

A student who drops a course after the last day to receive a refund and drop without evaluation will receive a grade of *W*. No student will be allowed to drop a course after the deadline for dropping a course as announced in the academic calendar for each semester or summer term unless there are extenuating circumstances and the drop is approved by the student's adviser and the dean of the college in which the student is a major. A student who is taking only one course must withdraw officially from The University if he/she drops the course.

Withdrawal. Any student voluntarily leaving The University before the close of the term must withdraw officially. A student initiates the withdrawal procedure and files the completed form at the Registrar's Office. A student who is unable to appear in person may notify the Registrar's Office of withdrawal by letter. A withdrawal is effective when the form or letter is received by the Registrar's Office. A student who withdraws from The University will receive the grade of *W* for all courses in progress. In order to return to The University, the student must apply and be accepted for readmission unless the withdrawal occurred during a summer session in which case a readmission application is not required.

Any student who leaves The University before the close of a term without withdrawing officially will receive a failing or unsatisfactory grade (*F* for undergraduate credit and *U* for graduate credit) in each course for which he/she is registered. Enrollment will be terminated for any graduate student who receives a *U* and he/she will be required to reapply for admission.

Two weeks prior to the last day of class (or a proportionate period for summer school) is the last date withdrawal transactions are to be processed. (Students who withdraw after that date will receive a grade of *F* or *U*.) No student will be allowed to withdraw after the deadline unless there are extenuating circumstances and the drop is approved by the student's adviser and the dean of the college in which the student is a major.

Dual Undergraduate/Graduate Registration. Undergraduate students at the University of North Carolina at Charlotte, who, by written request to the Dean of the Graduate School, accompanied by the regular application form and supporting credentials, indicate that they plan to undertake graduate study and who, in the last semester of residence, are required to take fewer than 12 semester hours of undergraduate work to fulfill all requirements for the bachelor's degree may be allowed during the final semester to enroll in certain courses for the purpose of obtaining graduate credit, provided prior approval is granted on a Special Request Form by the student's undergraduate academic adviser, the instructor(s), the dean of the college(s) in which the graduate course(s) is offered and the Dean of the Graduate School, in that order. The total hours to be carried in this status shall not exceed 12 hours, of which no more than nine may be for graduate credit. On the basis of work attempted prior to the final semester, such student must meet the grade point criteria for admission to a graduate degree program at The University. No course for which credit is applied to an undergraduate degree may receive graduate credit. Permission to take graduate courses under dual registration does not constitute admission to any graduate degree program at The University.

Consortium Registration. The Charlotte Area Education Consortium offers an inter-institutional registration during the fall and spring semesters for *undergraduate* students at the following institutions:

Barber-Scotia College
Belmont-Abbey College
Central Piedmont Community College
Davidson College
Gaston College
Johnson C. Smith University
Queens College
Sacred Heart College
UNCC
Wingate College
Winthrop College

Under this program, a full-time undergraduate student may take courses *not offered at UNCC* at one of the other participating institutions and have them appear on his/her transcript and be computed in his/her grade point average at UNCC. The registration process is initiated in the Registrar's Office and requires the approval of the student's academic adviser and college dean.

Inter-Institutional Registration. An inter-institutional registration program is available for a limited number of undergraduate and graduate students with the University of North Carolina at Greensboro, North Carolina State University, University of North Carolina at Chapel Hill and Duke University. The registration process is initiated in the Registrar's Office and requires the approval of the student's academic adviser and college dean.

Auditors. With the consent of the instructor, any person eligible for admission to The University as either an undergraduate or graduate student may register as an *auditor* for any class in which space is available. Fees and procedures are the same as those for a credit enrollment.

No student will be allowed to change audit/credit designation of a course after the first two weeks of a regular semester (or a proportional period for summer school).

The participation of auditors in class discussion and in tests or examinations is optional with the instructor. Auditors receive no University credit, but they are expected to attend class regularly. A formal record of the audit on the student's transcript is entered at the discretion of the instructor at the end of the course. The procedure for adding or dropping an audit course is the same as for credit enrollments.

COURSE LOAD

Undergraduate. A course load of 15 semester hours constitutes a normal full semester program for undergraduates, but a student may register for less work. A student enrolled in 12 or more semester hours is considered to be a full-time student by The University.

An appropriate course load is dependent on two factors: the scholastic ability of the student as reflected by his/her academic history and available study time. It is suggested that a student whose part-time employment totals 20 hours a week should not carry more than 10 semester hours. A student working 40 hours a week should not carry more than seven semester hours. Generally, an undergraduate student should not register for more than 18 semester hours during a semester.

Graduate. A course load of nine semester hours constitutes a normal full semester program for a graduate student. The graduate student's load should be lower than the normal undergraduate load to encourage extensive reading, independent thinking and appropriate individual research. Generally, graduate students should not register for more than 12 semester hours during a semester.

An appropriate course load is dependent upon two factors: the scholastic ability of the student as reflected by his/her academic history and the time available for study. Full-time professional public school employees are limited to one course each semester during the academic school year. Others whose full-time employment totals 40 hours a week should not carry more than seven semester hours.

CHANGE OF DEGREE OR MAJOR PROGRAM

Undergraduate. A student may change from one degree program or area of academic concentration to another when space is available provided he/she meets the prerequisites for admission to the new program and has appropriate written approval, a "Declaration of Program," filed at the Registrar's Office.

Graduate. A graduate student may change from one degree program to another if he/she meets the criteria for admission to the new program and is accepted by the new department. The student must file a written request for change with the Admissions Office, which will forward all credentials to the new department for an admissions decision. The student, department and registrar will be notified of the decision by letter.

ATTENDANCE

The instructional work of the University is designed for class attendance, and it is assumed that students will be present. Students who miss classes will be responsible for the work of those periods. A missed test may cost the student the advantage of a grade to be counted toward the final estimate since instructors are not required to give make-up tests.

No undergraduate student may expect to receive a favorable evaluation unless he/she has attended at least 75 percent of the total class hours.

In the event of a conflict between class attendance and other scheduled University activities, class attendance takes precedence.

GRADING POLICIES

Grade Reports. All students enrolled in The University receive reports of final grades from the registrar after the close of each term. The reports are mailed to the student at the address designated by the student.

Special *reports of unsatisfactory achievement* are sent to the students concerned near the middle of each regular semester.

Final Grade Changes. When a grade other than *Incomplete* is reported officially by an instructor at the end of a term, the grade is recorded by the Registrar and can be changed only if an error has been made in assigning or reporting the grade. When a grade is assigned consistent with University policy, only the instructor has the right to change a grade except as provided in the *Incomplete* grade policy. When an instructor reports a change for a grade other than *I*, the Change of Grade Form must be signed by his/her department chairperson and dean.

Students who think an error in grading has been made are advised to consult with the instructor as soon as the formal grade report is received. The erroneous grade must be reported to the instructor for correction during the next semester (fall or spring) in residence but no later than 12 months after the term in which the grade was assigned, whichever comes first.

Credits. The unit of measurement of University work is the *semester hour*. It ordinarily represents one lecture hour per week for one semester; however, a sequence of two or three laboratory hours is considered to be the equivalent of one lecture hour. Semester hours are also referred to as credit hours or credits.

Grades. Letters are used to designate the quality of work done. The University has separate grading systems for undergraduate and graduate students:

Undergraduate Grades			Graduate Grades		
Letter	Meaning	Quality Points Per Semester Hour	Letter	Meaning	Quality Points Per Semester Hour
A	Excellent	4	A	Commendable	4
B	Good	3	B	Satisfactory	3
C	Fair	2	C	Marginal	2
D	Passing	1	U	Unsatisfactory	0
F	Failing	0	I	Incomplete	*
I	Incomplete	*	IP	In Progress	*
W	Withdrawal	*	W	Withdrew	*
AU	Audit	*	P	Pass	*
NR	No recognition given for audit	*	N	No credit	*
			AU	Audit	*
			NR	No recognition given for audit	*
	Pass/No Credit				
H	Honors	*			
P	Passing	*			
N	No Credit	*			

**Not used in computation of grade point average.*

Certain graduate courses such as research seminars, tutorials, internships or theses may be designated for *pass-no credit* grading upon recommendation of the offering department and approval of the Graduate Administrative Board. The grade of *P* in such a course shall be considered as evidence of satisfactory performance. A grade of *N* (no credit) will not affect eligibility for continued enrollment nor will it apply toward requirements for the degree.

Credit by Examination. No grade is assigned for credit earned by examination, but such credit is indicated on the student's transcript.

Grade of *I*. The grade of *I* is assigned *at the discretion of the instructor* when a student who is otherwise passing has not, due to circumstances beyond his/her control, completed all the work in the course. The missing work must be completed during the next semester (fall or spring) in residence, but no later than 12 months after the term in which the *I* was assigned, whichever comes first. If the *I* is not removed during the specified time, a grade of *F, U* or *N* as appropriate is automatically assigned. *The grade of I cannot be removed by enrolling again in the same course.*

Grade of *W*. No grade will be given for a course dropped on or before the last day to drop a course with refund. After this period but before the last day to drop, a student who withdraws from a course will receive a grade of *W*. Courses given the grade of *W* do not count as hours attempted. Only students with such extenuating circumstances as serious illness will be permitted to drop after the last day to drop. Unsatisfactory academic performance itself is not an extenuating circumstance. The time of withdrawal is the time the drop card or withdrawal form is accepted by the Registrar's Office.

Grade Point Average. The grade point average for an *undergraduate* student is determined by multiplying the number of quality points for each grade by the number of semester hours credit received in that course and adding all accumulated quality points together, then dividing by the total number of semester hours the student has attempted, except those for which the student has received a grade of *I, W, H, P, AU,* or *N*. When a course is repeated, no additional credit hours attempted accrue, and the hours earned and quality points of the previous grade are replaced by those of the current grade. These regulations do not apply to those courses listed as "May be repeated for Credit." In computing the grade point average, only those credits attempted at the campus of the University of North Carolina at Charlotte or through the Charlotte Area Educational Consortium are included.

The grade point average for a *graduate* student is based only on those courses in his/her approved program of study taken at UNCC or through the Charlotte Area Educational Consortium. It is determined by multiplying the number of quality points for each grade (A = 4, B = 3, C = 2, U = 0) by the number of semester hours credit received in that course and adding all accumulated quality points together, then dividing by the total number of semester hours the student has attempted except those for which the student received a grade of I, IP, W, P, N, AU, or NR. When a course not listed as "may be repeated for credit" is repeated, no additional credit hours attempted accrue and the hours earned and quality points of the previous grade are replaced by those of the current grade.

Repeating an Undergraduate Course. Whenever a course is repeated by an *undergraduate student,* no additional hours attempted accrue, and the last grade replaces the previous grade in computing the grade point average and in the assignment of academic credit. However, all entries remain a part of the student's permanent academic record. A student who has received a grade of *C, H, P* or better in a course may repeat that course only with the prior approval of the student's adivser, department chairperson and dean. Repeating a course more than once to raise a grade requires prior approval of the student's adviser, department chairperson and dean. These regulations do not apply to courses that may be repeated for credit. Questions concerning this policy should be directed to the Registrar's Office.

Repeating a Graduate Course. A *graduate* student will be allowed to repeat a maximum of two courses in which the student has been assigned a grade of C, U or N (but not an I). A given course may only be repeated one time. Whenever a course is repeated, no additional hours attempted accrue, and the new grade replaces the previous grade in computing the grade point average and in the assignment of academic credit. The record of the first attempt will remain as part of the student's permanent record, and the accumulation of marginal (C) grades will not be lowered by successfully repeating a course.

Pass-No Credit Option. Every student will be permitted during his/her four *undergraduate* years to select a total of four courses in which he shall receive an evaluation of *H* (honors), *P* (pass), or *NC* (no credit). Only one such course will be selected during an academic year. Every course in the University is offered on this basis except when taken by a student for departmental credit toward his/her major or to satisfy all University degree requirements. Although units completed with honors or pass will count toward graduation, they will not be considered in the computation of the grade-point average.

This option is designed to encourage curiosity, exploration and experimentation in areas where a student has strong interest but little or no previous experience.

The student must declare his/her intentiont o take a *Pass-No Credit* option by the end of the add period in the semester. Courses designated by the faculty to be graded only on a *pass-no credit* basis are not counted as part of this option.

TRANSCRIPTS OF RECORDS

Upon written request by the student, an official transcript of the academic record will be issued to the person or institution designated, provided that all the student's obligations to the University have been settled satisfactorily.

Each student is entitled to one transcript without cost, regardless of how early in his/her academic career the request may be made. A fee of $1 per copy should accompany subsequent requests.

Requests should reach the Registrar's Office at least one week before the date the transcript is needed.

CLASSIFICATION OF UNDERGRADUATE STUDENTS

At the beginning of each semester, regular students working toward a bachelor's degree are classified on the basis of minimum earned semester hours as follows:

Classification	Earned Semester Hours
Freshman	1-23
Sophomore	24-51
Junior	52-89
Senior	90 or more

REQUIREMENTS FOR CONTINUED ENROLLMENT

Undergraduate. In order to remain in good standing, the student's cumulative grade point average at UNCC must be 2.00 or higher. The quality point deficit is the number of additional quality points required to increase the student's cumulative GPA to 2.00. A student with a quality point deficit between one and 13 will be placed on academic probation, and this will be noted on the student's grade report. A student will be suspended if the student:

a. has a quality point deficit of 14 or more, or
b. has failed to achieve good standing after two successive semesters on probation (excluding summer sessions).

No student shall be suspended at the end of the current semester if the student:

a. was in good standing at the end of his/her most recent semester of a regular academic year at UNCC or
b. is in his/her first semester of enrollment at UNCC, or
c. has a 2.50 GPA for the current (excluding summer sessions) semester, or
d. is readmitted and was not enrolled at UNCC in the last two calendar years prior to the beginning of the current semester.

As a general rule, the summer session at the University of North Carolina at Charlotte shall be open to all students previously enrolled here, including students academically ineligible to continue during the regular academic year.

In computing the grade point average, only those credits attempted at the campus of the University of North Carolina at Charlotte or through the Area Educational Consortium are included.

Graduate. A student enrolled in any graduate program should maintain satisfactory progress toward the degree. He/she is expected to achieve a commendable or satisfactory grade *(A or B)* in all course work attempted for graduate credit.

An accumulation of three marginal *(C)* grades will result in termination of the student's enrollment in the graduate program. If a student makes a grade of *U* on any course, enrollment will be terminated.

A graduate student whose enrollment has been terminated because of grades is ineligible to attend the summer session unless properly readmitted.

A student readmitted to the graduate program through the reapplication procedures will be expected to complete the degree program with satisfactory or commendable performance. Should the student receive a grade of C or U after being readmitted to the program, his/her enrollment in the graduate program will be terminated.

REQUIREMENTS FOR READMISSION AFTER ACADEMIC SUSPENSION OR TERMINATION

Undergraduate. No student under suspension will be readmitted to the University if he/she does not completely satisfy the entrance requirements as stated elsewhere in this catalog.

In addition, a student who has been suspended by reason of failure to satisfy the requirements for continued enrollment as stated above will be ineligible for readmission until (1) the expiration of the next semester following his/her suspension (except that he/she will be permitted to enroll in the summer session); (2) he/she meets the requirements for continued enrollment; (3) he/she earns an associate of arts (AA) degree from an accredited two-year institution; or (4) the student elects to use the "two year rule". If readmitted, the student will be expected to satisfy the requirements for continued enrollment.

At the end of the semester in which the student fails to meet the requirements for continued enrollment for the second time, he/she will be suspended and may be readmitted only after meeting the requirements for continued enrollment.

The student has recourse for meeting the requirements for readmission by attending summer sessions at UNCC.

NOTE: Readmission after suspension or after an incomplete semester, whether caused by withdrawal or suspension, is not automatic. A new application must be made and approval to return received. Included in the approval must be an acceptance from the department in which the student would carry his major. (See page 36, Readmission of Former Students.)

Graduate. Students whose enrollment is terminated for academic reasons must apply and be readmitted in order to continue their program of study. After notification of termination is received, the student initiates the reapplication procedure by filing an application for graduate readmission and a letter explaining any extenuating circumstances with the Admissions Office. If the student was not enrolled when the notice of termination was received, the application must be accompanied by a $15 fee which is not refundable. The Admissions Office will forward the application to the student's department/college for a recommendation. Applications for non-degree students will be forwarded to the Dean of Admissions and Records. The department/college will designate a Readmission Committee to consider the student's appeal for readmission. The committee will be composed of faculty members other than the faculty member(s) who assigned the grades of *C* or *U*. The Readmission Committee shall recommend to the director of graduate studies that the student either be reinstated or dropped from the program. The Readmission Committee will decide each case on its individual merits. The student will be notified of the decision in writing.

TRANSFER CREDIT AND ADVANCED STANDING

Evaluation of transfer credits, advanced standing, CLEP, and APP are coordinated through the Admissions Office. Prospective students who desire further information about policies and procedures for awarding credit should communicate with the director of admissions.

UNCC will accept or transfer appropriate undergraduate credits earned through APP, CLEP, correspondence courses, extension courses, armed forces service schools, and college-level courses completed prior to graduation from high school. In addition, UNCC will accept or transfer appropriate undergraduate and graduate credits earned at another accredited institution or through credit by examination. Credit toward a degree is not awarded for Continuing Education Units (CEUs).

Advanced Placement Course Credit (APP). The University will accept appropriate undergraduate credits earned through Advanced Placement Program Tests completed prior to graduation from high school. Students must request that official Advanced Placement test results be sent directly to the Admissions Office for evaluation (UNCC code-5105). Prospective students who desire further information about policies and procedures for awarding credit should contact the Admissions Office, UNCC, Charlotte, NC 28223, (704) 597-2211.

College Level Examination Program (CLEP) The General Examinations. An undergraduate student may receive up to 32 semester hours of credit equivalent to the UNCC general degree requirements, with credit being awarded only for scores at the 50th percentile, or higher.

The Subject Matter Examinations. Credit may be awarded for subject matter examinations listed on the following page at the levels recommended in the current edition of *CLEP Scores: Interpretation and Use:*

Business
Computers and Data Processing
Elem. Programming-Fortran IV
Intro. Business Management
Intro. Accounting
Intro. Business Law
Intro. Marketing

Education
Educational Psychology
Human Growth & Development

Mathematics
Calculus w/Anal. Geometry
College Algebra
College Algebra-Trigonometry
Statistics
Trigonometry

Nursing
Anatomy
Physiology
Microbiology

Sciences
Biology
General Chemistry

Foreign Languages
College French I & II
College German I & II
College Spanish I & II

Humanities
American Literature
Anal. & Interp. of Literature
College Composition
English Literature
Freshman English

Social Sciences
Afro-American History
American Government
American History I & II
General Psychology
Intro. Macro-Micro Economics
Intro. Macroeconomics
Intro. Microeconomics
Intro. Sociology
Western Civilization I & II

Credit is *not* awarded for examinations in dental hygiene and medical technology.

The amount of CLEP credit which is applicable to a specific degree program is determined by the department offering the program.

Transfer Credit from Other Institutions. Transcripts are evaluated in the Admissions Office and the results are provided to the applicant and to the major department/college. Determining the applicability of transferred credits to major or program requirements is the responsibility of the department chairperson or program director. General rules governing transfer credit:

1. To be considered for transfer credit, the courses must have been undertaken at a *regionally* accredited institution.
2. *Provisional* transfer credit may be granted for study at foreign institutions or U.S. institutions which are not regionally accredited, but must be validated by 30 semester hours of successful performance in residence at UNCC.
3. Courses in which credit is accepted must be appropriate for approved University programs and curricula in which the student is enrolled.

Additional requirements for *undergraduate* transfer credit:

4. No credit below *C* level will be accepted; quality points and averages do *not* transfer.

Additional requirements for *graduate* transfer credit.

5. The grade in any course accepted for transfer credit must be the equivalent of that awarded for commendable *(A)* or satisfactory *(B)* work as defined by UNCC.
6. At the time of admission up to six transfer hours credit may be accepted from another accredited institution upon approval of the student's adviser and the dean of his/her major college.
7. Courses accepted for transfer are subject to the same time limitation as courses taken in residence.

Correspondence and Extension Courses. A limited number of correspondence and/or extension courses may be transferred.

Courses from Two-Year Institutions. The University accepts a maximum of 64 hours from two-year institutions for undergraduate students.

Transient Study. Courses undertaken by UNCC students at other accredited institutions may be transferred to the University subject to the following regulations:

1. The University is not obligated to accept any credit from another institution unless the student has obtained the prior approval of the dean of the college in which he/she is enrolled. A Permit for Transient Study form should be completed and filed in the Registrar's Office.
2. No credit will be accepted below C level for undergraduate students or below B level for graduate students.
3. The student must request that an official transcript be mailed to the Registrar's Office upon completion of the course.

Credit by Examination. A student currently enrolled at UNCC may pass a specially prepared challenge examination and receive credit for a University course without having to do the normal course work. The student contacts the chairperson of the department in which credit is sought to request administration of an examination. Since it may not be appropriate to award credit by examination for some courses, the decision to offer an examination is that of the department. If the chairperson authorizes an examination, the student is instructed to pay the fee for credit by examination (see page 50) and to bring the receipt of payment to the examination. Credit by examination will be indicated on the transcript, but no quality points will be awarded. Failure on such an examination will incur no quality point penalty. A department may allow a student to take examinations for courses not offered at UNCC, if it deems it appropriate to do so. No student may challenge a course for which either a passing or failing grade has been received at UNCC.

APPLICATION FOR THE DEGREE

Each student should make application for his/her degree on a form obtained from the Registrar's Office no later than the filing date specified in the University calendar. The application must be accompanied by the appropriate filing fee in effect at the time of the application. Degrees are awarded at commencement exercises held at the end of the spring semester; however, the diploma and transcript will reflect the term in which all requirements were completed.

TEACHER CERTIFICATION

Students having completed degree requirements and filed application for their degree, who wish certification as public school teachers must request such certification from the State Department of Public Instruction on a form obtained from the College of Education and Allied Professions. For assistance, please call (704) 597-2539.

SECOND DEGREE AND/OR MAJOR

Second Baccalaureate Degree. Students who have earned bachelor's degrees from UNCC or other accredited institutions may enroll in a program leading to a second degree at the same level provided (1) the major field selected is different from that of the first degree; (2) the degree sought is different from that of the first when that degree was granted by UNCC; and (3) the appropriate application for admission is filed and approved.

Students seeking a second baccalaureate degree must (1) complete a minimum of 24 semester hours beyond those applied to the first degree; (2) satisfy residency requirements if their first degree was not earned at UNCC; (3) fulfill all general degree requirements; (4) achieve a minimum grade point average of 2.00 on all work attempted toward the second degree and (5) satisfy all department and college requirements for the degree sought.

Second Baccalaureate Major. Students who have earned a bachelor's degree from UNCC or are working on a bachelor's degree at UNCC may enroll in a program leading to a second major under the same degree provided (1) the second major field selected is different from the first; (2) the student meets the requirements for acceptance into the second major program; and (3) the appropriate application or "Declaration of Program" is filed and approved.

Second Master's Degree. A student is permitted to earn a second master's degree subject to the following conditions; (1) no work applied to a previously awarded degree may be applied to the new degree program; (2) the student must gain admittance to a degree program different from that of his/her previous graduate degree(s) as determined by the HEGIS classification system, and (3) the student must successfully meet all requirements for the new degree.

The University of North Carolina classifies its degree (and certificate) programs with a modified version of the system used by the U.S. Office of Education in its Higher Education General Information Survey (HEGIS). The HEGIS system classifies all degree programs for appropriate instructional planning and identification.

APPEAL PROCEDURES

Undergraduate. A student or applicant may appeal decisions about admission or suspension by submitting a written statement to the Admissions Advisory committee in care of the Dean of Admissions and Records.

Other grievances relating to academic status are to be addressed by the college where the grievance arises, or if no particular college is appropriate, by the dean of admissions and registration. Written procedures are available from the dean of each college and the dean of admissions and registration.

Graduate. Any student or applicant may appeal any decision affecting his/her status as a graduate student by submitting a written petition to the Appeals Committee of the Graduate Administrative Board in care of the Graduate School after remedies have been exhausted in the appropriate college. The petition shall briefly describe the facts which support his/her claim and the remedy being sought. The petition must be submitted within six calendar months of notification of the action being appealed. After receiving the petition, the chairperson of the Appeals Committee will schedule a hearing as soon as possible. A hearing will be held within 60 days of receipt of the written petition of appeal. Evidence will be received from the petitioner and other parties having information bearing on the appeal. The chairperson of the Appeals Committee shall report its decision on any appeals matter (a) directly to the director of graduate studies and (b) to the Graduate Administrative Board at the first board meeting following the hearing. The Dean of the Graduate School shall advise the petitioner in writing of the decision of the Appeals Committee within 30 days after the end of the hearing. Questions about the procedure should be addressed to the Dean of the Graduate School.

Academic Honors

CHANCELLOR'S LIST

The Chancellor's List is a record of all undergraduate students whose academic record during the fall or spring semester merits special recognition from the University. In order to qualify for the Chancellor's List, grades of *A, B, C* or *HH* must be earned for at least 12 semester hours of credit. This would not exclude students who receive the grade of , *AU, H, P* or *HP* as long as 12 hours are completed with *A, B, C* or *HH*. This would exclude a student who receives the grade of *D, F, I, NR* or *N,* no matter how many *A, B, C* or *HH* grades are recorded. The grade point average must be at least 3.60 for the semester in which the student makes the list.

COMMENCEMENT MARSHALS

The juniors who have the highest scholastic averages among those enrolled full-time during the fall and spring semesters are honored by being named commencement marshals. The marshal who has the best academic record is designated chief marshal. For the purpose of this selection, the University considers as juniors those students who will have completed 89 hours of degree work at the end of the spring semester. Juniors who have not completed their last two semesters of work or their last 24 credit hours prior to the spring semester at the University of North Carolina at Charlotte shall not be considered as eligible to be marshals.

GRADUATION WITH DISTINCTION

Each of the undergraduate degrees is awarded Summa Cum Laude when the graduate's grade point average is 4.00, Magna Cum Laude when his/her grade point average is at least 3.80 but less than 4.00, and Cum Laude when his/her grade point average is 3.40 or more but less than 3.80.

To be eligible to graduate with distinction, a student must attempt in residency at UNCC 48 hours used in computing the grade point average.

Degree Requirements

BACCALAUREATE DEGREE REQUIREMENTS

Residence Requirements. The minimum residence requirement for a bachelor's degree at the University of North Carolina at Charlotte is that a student must earn the last 30 semester hours of credit at The University. The last 12 semester hours of the work in his/her major field must be earned at The University. Exception to either of these hour provisions may be made upon the recommendation of the student's major department and with the approval of the dean of the college of the student's major.

Course work taken in residence shall be construed to mean work offered by the University of North Carolina at Charlotte and taken in courses on the Charlotte campus. Credit earned by challenge examinations cannot be used to meet the residence requirement.

Grade Point Requirements. In all courses attempted at the University, a minimum overall grade point average of 2.00 is required. In all courses in the major, a minimum grade point average of 2.00 ie required.

Course Level Requirement. Junior and senior students are required to have the consent of the major department to enroll in any course below the 3000 level not required in their degree program.

General Education Requirements for All Baccalaureate Degrees. The following common core of general education requirements is designed to develop skills, competencies and learning capacities to achieve the Goals of UNCC Education. These requirements apply to all candidates for baccalaureate degrees who enter The University as:

- **freshman students** *after spring semester 1986.* (A new freshman student is an entering student for whom 23 or fewer semester credits from prior academic work have been accepted toward a UNCC degree.)

- **transfer students** *after spring semester 1988.* (A new transfer student is an entering student for whom more than 23 semester credits from prior academic work have been accepted toward a UNCC degree.) *Exceptions* are new transfer students admitted to the Bachelor of Engineering Technology (B.E.T.) programs and to the General Criminal Justice Concentration. These students will meet the requirements specified by their department.

- **readmitted students** *after spring semester 1988* if they have been away from The University for a period of 12 months or longer.

All other students admitted as freshmen prior to summer 1986 or as transfer students prior to summer 1988 *must meet these requirements or the appropriate course requirements for their degree* as specified on pages 72-75 in this catalog.

Requests for exceptions to any aspects of these requirements for individual students will be approved by the Vice Chancellor for Academic Affairs in consultation with the Council on General Education. Such exceptions may be requested by completing the Special Request Form, including approvals by the student's adviser, chairperson and dean and submitting it to the Office of Academic Affairs.

Goals of UNCC Education. UNCC graduates should be self-motivated individuals who are able to form, articulate, and act upon reasoned decisions in their personal, civic, and professional lives. To this end they should (a) have a broad knowledge base as well as a more specialized knowledge base in their chosen area, (b) possess skills and capacities that can be applied to a variety of situations and professions in an ever-changing world, (c) understand the complexities and interrelationships between humans and their environment, and (d) possess a realistic understanding of their own potentials, limitations, and mental/physical development. All UNCC graduates should possess a general understanding of and appreciation for science and technology; literature and the arts; the individual, society, and culture; and the interrelationships among these.

In order to meet the Goals of UNCC Education, students engage in programs designed to develop understandings, skills, and capacities in the following six interrelated major areas:

I. COMMUNICATION

UNCC graduates should be able to:

A. Effectively send and receive in English written and oral messages in different situations for a variety of audiences, purposes and subjects.
B. Communicate effectively in a symbolic system or language (other than English) having written, oral or visual components.

Requirements

- English 1101 and 1102 (or transferred equivalent courses, or proficiency through the English 1102 level demonstrated by testing).

- Writing intensive courses: six semester hours, including three semester hours at the 3000-level or above and at least three semester hours outside the student's major. (Writing intensive courses are identified in the Schedule of Courses published for each semester and the summer sessions.)
- Foreign Language proficiency through the 1202 course level. (Proficiency may be certified by completion of a 1202 course, or transfer of an equivalent course, or by satisfactory performance on a placement examination.)

Students whose native language is not English may satisfy the foreign language requirement with English 1102.

II. PROBLEM SOLVING

UNCC graduates should possess the analytical abilities necessary to:

A. Sense, discover, and define problems.
B. Recognize and understand the use of qualitative and quantitative methods for solving problems and select those appropriate for a specific problem.
C. Collect and order information.
D. See the relationships among phenomena.
E. Assess the probable implications of a solution.
F. Decide on an appropriate solution to a specific problem.
G. Evaluate the problem-solving process.

Requirements. Problem solving is a goal of all courses taught in The University and it is integrated into all the other Goals of UNCC Education. Additional requirements:

- Analytical and quantitative approaches to problem solving (select one):
  a. Mathematics (six semester hours) **OR**
  b. Mathematics (three semester hours) and Logic (three semester hours) **OR**
  c. Mathematics (three semester hours) and Computer Science 1100.
- Research Methods and problem solving course work appropriate to the major discipline or field of study. (This course work is specified by the student's major department.)

III. UNDERSTAND VALUES

UNCC graduates should confront the dynamics of personal and community interrelationships by:

A. Recognizing the assumptions, beliefs, and values underlying one's own conduct.
B. Recognizing the historical context and assessing the consistency of one's own values.
C. Recognizing differences in the assumptions, beliefs, and values underlying the conduct of others.
D. Recognizing the implications of decisions made on the basis of values.

Requirements. Aspects of this goal are addressed by many courses throughout the curriculum and by extracurricular activities offered on and off campus. Specific academic requirements:

- Values course: three semester hours. (Values courses are identified in the Schedule of Courses published for each semester and the summer sessions. Courses carrying this designation also may satisfy other general education requirements.)

IV. UNDERSTAND SCIENCE AND TECHNOLOGY

UNCC graduates should:

A. Be conversant with and have had experience in the aims, methods, and principles of scientific and technological endeavors.
B. Understand the nature and limitations of the world view given us by sciences.
C. Understand the effects of technology in shaping the physical and human environments.

Requirements. (Laboratory science courses are indicated in the Schedule of Courses published for each semester and for the summer sessions.) Completion of *one* of the following options:

A. Three laboratory science courses including laboratories selected from designated areas, OR
B. A recognized two semester sequence of courses designated as laboratory sciences with laboratories.

V. UNDERSTANDING THE ARTS, LITERATURE AND IDEAS

UNCC graduates should

A. Be conversant with, and have had experience in, the aims and methods of the great intellectual, spiritual, literary, and artistic expressions that have shaped the development of the human imagination.
B. Understand the importance that abstract ideas and artistic images have in the process of self understanding and in the shaping of society.

Requirements. (Courses designated to fulfill these requirements are identified in the Schedule of Courses published for each semester and the summer sessions.)

- Literature or Ideas Courses: three semester hours
- The Arts and Ideas Courses: three semester hours

VI. UNDERSTANDING THE INDIVIDUAL, SOCIETY, AND CULTURE

UNCC graduates should be able to:

A. Understand how institutions operate with societies in both contemporary and historical perspectives.
B. Understand internal and external influences which promote and inhibit human action.
C. Understand the patterns of change which individuals experience at various points in life.
D. Recognize the complex, integrated, and dynamic nature of human behavior and human experience.
E. Understand the commonalities, differences, and inter-dependence among and within societies of the world.

Requirements. (Courses designated to fulfill these requirements are indicated in the Schedule of Courses published for each semester and the summer sessions.)

- Individual, Society and Culture Courses: six semester hours including at least three semester hours selected from courses designated as embodying a cross-cultural or international perspective.

Course Requirements for Specific Baccalaureate Degrees. These requirements apply to all candidates for baccalaureate degrees who do not choose to meet the "General Education Requirements for all Baccalaureate Degrees" specified on pages 70-72 of the catalog and who entered The University as:

- freshman students before summer 1986.
- transfer students before summer 1988.
- readmitted students before summer 1988 or after summer 1988 if they were away from The University for less than 12 months.

Requirements are specified for each baccalaureate degree.

Bachelor of Arts (BA) and Bachelor of Science (BS)

Minimum total semester hours required for graduation: 120

(BA degree with major in architecture requires 135 hours)

Subject	*Semester Hours Required*
English	6
Natural Science (One year of a laboratory science—Anthropology 241, biology, chemistry, Earth Science 1101, 1102, Physics, or Psychology 1101-1101L. Psychology 1101 may be offered as a natural science or as a social science but not as both.)	8
Social Science (to be selected from Anthropology, Criminal Justice, Economics, Geography, Political Science, Psychology or Sociology)	6
Humanities (to be selected from any courses that are not used to satisfy any other requirements for a degree and are offered by the programs and departments which follow: Afro-American and African Studies, American Studies, English, Foreign Languages, History, Humanities, Philosophy, Performing Arts, Religious Studies, Speech and Visual Arts. A foreign language may be offered as a foreign language or as a humanity, but not as both.)	6
Option of Mathematics or Foreign Language	6-8

Mathematics Option. Under the mathematics option a course in logic may be substituted for one course in mathematics.

Foreign Language Option. The student who selects the foreign language option is expected to achieve and demonstrate proficiency in a language other than English. Proficiency must at least equal that obtained by successful completion of 202-level language courses.

A student who presents four high school units in the same foreign language will be presumed to have satisfied the foreign language option of the general degree requirements even though he receives no University credit in that language.

The student who presents two units in a given language for entrance and who, by placement test, is found capable of enrolling in the 2201 course in the same language, can satisfy the general degree requirement by successfully completing the 2201 and 2202 courses in that language.

The student who, on the basis of placement results, is advised to repeat the elementary course will receive credit for doing so. He or she may also choose to take an elementary course in another foreign language for elective credit.

A student admitted without foreign language units must take two elementary language courses for which he or she receives elective credit.

A student transferring to the University of North Carolina at Charlotte with two or more years of college work in an ancient or modern language not taught at the University, with a grade of at least *C* in each course, will be deemed to have fulfilled his foreign language requirement, provided he or she has completed satisfactorily two years of high school foreign language.

Students transferring from other colleges will take language placement tests in the language they intend to continue at the University, and they will be advised to register for the course for which they are best fitted, according to their placement test scores, for best results in their language sequence. They may not, however, receive credit again for courses the equivalent of which have already been accepted for transfer credit.

NOTE: For the number of hours and additional courses required for a specific major, see the requirements of that department in the section entitled Courses of Study and Special programs.

Bachelor of Architecture (BArch)

The Bachelor of Architecture requires 30 semester hours of specified courses beyond the requirements for the Bachelor of Arts degree with a major in Architecture.

Bachelor of Creative Arts (BCA)

A minimum of 120 hours is required for graduation with a GPA of 2.5 or more in courses and individual projects in the major. Students must earn a C or better in all courses in the major. A *major in Performing Arts* consists of at least 50 hours in Performing Arts lecture and studio courses, 30 hours of related non-performing arts electives, ENG 1101-1102 and 20 hours of individual projects. A *major in Visual Arts* consists of at least 60 hours in Visual Arts lecture and studio courses, 30 hours of related non-visual arts electives, ENG 1101-1102 and 21 hours of individual projects.

Baccalaureate Degrees in Engineering (BSCE, BSEE, BSME)

Courses	*Semester Hours*
English	3
Humanities and Social Science Electives	15
Economics	3
Mathematics	17
Physics	10
Chemistry	4
Science Elective	3
Freshman Engineering	1
Engineering Science	6
Department Requirements	58
Technical Electives	12-15
Total Number of Semester Hours Required	132

NOTE: The courses required for a specific degree are described in the departmental section of this catalog under Courses of Study and Special Programs. The science elective, the humanities and social science electives, and the technical electives will ordinarily consist of sequences of related courses and are subject to the prior approval of the college.

Bachelor of Engineering Technology (BET)

Prerequisite courses for entering the Engineering Technology program normally taken at a technical institute or junior college, are listed on page 312.

Course	*Semester Hours*
Chemistry 1101 (or other Natural Science)	3*
Computer Science (CSC) 1000	4
Economics 2101 or 2102	3
Humanities or Social Science electives	12*
Free electives	3
Major electives	6*
Engineering Analysis	6*
Specified courses in major area of study	23*
Total	64
Transfer credit for A.A.S. degree	64
Total number of semester hours required for B.E.T. degree	128

**Differences exist for CET and MET curricula.*

Bachelor of Science in Nursing (BSN)

A major in Nursing leading to the Bachelor of Science in Nursing degree requires 120 semester hours including the following:

Course	*Semester Hours*
English	6
Humanities	6
Mathematics 1101 and 1222	6
Biology 1110, 1259 and 1273	12
Chemistry 1103 and 1104	8
Psychology 1101 and 3151	6
Sociology 1101 and Family	6
Nursing 1100 or equivalent	3
Nursing	55
Electives	12
Total semester hours	120

GRADUATE DEGREE REQUIREMENTS

Residence Requirements. Generally, no more than six semester hours of transfer credit is accepted toward a graduate degree. All other work must be residence credit.

Residence credit is credit that is earned under the conditions specified herein and may be applied toward the attainment of graduate degrees at the University of North Carolina at Charlotte. These conditions must be satisfied regardless of the location in which the course is given.

1. Instruction: The instructor must be a member of the Graduate Faculty of UNCC, or "especially qualified" for a particular course under Graduate Administration Board policy.

2. Course(s): The content of each course must be approved by regularly established college and University curricular processes before the course is scheduled or offered.

Residence credit may also be awarded by virtue of an examination administered by the faculty of the college offering credit. A student may also, with the prior approval of the appropriate University of North Carolina at Charlotte college(s), take graduate courses for residence and course credit at other accredited institutions.

Program Approval. Each student's individual program of study must be approved by his/her department/college.

Admission to Candidacy. Upon successful completion of a minimum of 18 semester hours of graduate work and in no case later than two weeks prior to the beginning of the semester in which he/she expects to complete all requisites for the degree, a student should file for Admission to Candidacy on a form supplied by the Registrar's Office. This application is a check sheet approved by the student's adviser, department chairperson and college dean listing all course work to be offered for the degree (including transfer credit and courses in progress.)

Upon receipt of this application, the Dean of the Graduate School will consult with the department concerned to arrange for the scheduling of the comprehensive examination(s) and composition of the examining committee.

Minimum Hours and Quality. A student is expected to satisfactorily complete a minimum of 30 to 42 semester hours of approved courses, depending upon his/her individual program, with an overall grade average of 3.00 or better. No more than six hours evaluated as C may be counted toward the minimum hours required for the master's degree.

Comprehensive Examination. After admission to candidacy, each student must successfully complete a comprehensive examination. The examination may be written, oral or both, depending upon the student's specific program requirements.

Time Limit. All work offered for the master's degree, including accepted transfer credit, must be completed within a six-year period.

Course and Other Requirements. For a description of course and other requirements for specific degrees and majors, consult the section of this catalog entitled Courses of Study and Special Programs under the department offering the program.

Courses of Study And Special Programs

Courses of Study

Following are descriptions of courses and programs offered by the University of North Carolina at Charlotte for both undergraduate and graduate students. Courses and degree programs are listed by college and department or academic area. Other special programs and information about preparation for professional schools are listed in separate sections.

Course Descriptions. Courses are listed with a subject prefix and course number, the title of the course, the semester hours credit given in parentheses, prerequisites or corequisites, if any, and a description of the subject matter of the course. The description may specify the number of class and/or laboratory sessions and hours. If no class hours are given, the number of class hours per week is the same as the number of semester hours credit for the course.

Course Numbering System. Effective with this catalog, courses are identified by four-digit rather than three-digit numbers. (The old number is shown within parentheses in the left margin.) The first digit of the number generally identifies the level of the course; 1000-2999: lower-division undergraduate; 3000-3999: upper-division undergraduate; 4000-4999: upper division undergraduate and graduate; 5000-5999: graduate and advanced undergraduate; 6000-7999: graduate only. Additional work generally is required by graduate students in 4000 level courses. The following second digits designate special types of courses: 0 for topics, 4 for internships and practica, 5 for cooperative education, 6 for seminars, 7 for honors courses, 8 for independent study and 9 for research.

Course Selection. Although each student is responsible for the proper completion of his/her academic program, the student should consult with the assigned academic adviser or advisory committee in his/her major field. The adviser will assist the student to select courses within an approved program for study which will enable him/her to progress logically and successfully to the conclusion of the chosen degree program and to fulfill the requirements of both the University and the major department or professional sequence. Students intending to teach should consult faculty advisers in both the major department and the College of Education and Allied Professions.

Placement Examinations and Procedures. Placement examinations are given at the beginning of each semester to assist students to determine the appropriate course for them in Freshman English, foreign language and mathematics.

Freshman English Placement Procedures. The Freshman English Placement Test is administered during the orientation period at the beginning of each fall and spring semester. It is open to any student who wishes to take it and the English Department specifically invites some students to take it. A student whose primary language is not English cannot be registered for Freshman English until the appropriate UNCC English Placement Test has been taken.

Foreign Language Placement Procedures. Placement examinations in the foreign languages are given during the orientation period at the beginning of each fall and spring semester. They are open to any student who wishes to take an examination in a language he/she has studied for at least one year in high school.

Mathematics Placement Procedures. The UNCC Mathematics Placement Guide will be used to help students select the appropriate entry level mathematics course. A copy of the guide is included in the orientation packet for new freshman students.

College of Architecture

Dean: Professor Hight
Professors: Anderson, Melaragno
Professor Emeritus: Langhorst
Associate Professors: Benzing, Gallis, MacLean, Morgan, Nelson, Vollendorf
Assistant Professors: Dinsmore, Hinson, Kleinman, Lambla, Migani, O'Riordan, Sauda, Venn
Lecturer: Maclure
Part-time Lecturers: Aveleyra, Preiss, Wagner
The Distinguished Visiting Architects: Calthorpe, Eisenman, Libeskind, Liebman, Santos, Torre

Our society's increasing concern for environmental quality and realization of the fact we live in a world of finite resources provides unprecedented opportunities for architects to be engaged in research and programming, as well as in the planning and design of our buildings, building complexes, cities and other elements of the built environment.

The college believes humane, economically sound and visually stimulating cities and buildings can only be obtained through sensitive, responsible and creative meshing of the physical, societal, psychological, ecological, technical and visual determinants of environmental planning and design.

Therefore, the College of Architecture seeks to cultivate a sense of inquiry within each student and develop the individual's techniques of problem identification and solving. As process and product are viewed as being equally important and interrelated, the COA believes students must possess the necessary verbal and visual communication skills for examining environmental issues, testing ideas and communicating with others, as well as being equally proficient at analysis and synthesis.

In order for students to receive individual attention, the student-faculty ratio is kept as low as reasonable, and the faculty is composed of persons with a broad range of knowledge, skills and philosophies. In addition to the full-time faculty, a number of local practitioners participate as part-time instructors and an extensive visiting lecture-design critic program has been established.

Located in the major and most rapidly growing metropolitan area of the Carolinas, the College is able to incorporate community assistance projects into the educational program, and students may observe major buildings under construction, evaluate recently completed building complexes and examine the urbanization phenomena.

The program is organized into a four-year segment (Bachelor of Arts degree in Architecture) followed by a one-year segment (Bachelor of Architecture degree).

Bachelor of Arts in Architecture. This four-year program requires 135 semester hours including 48 hours architectural studio, 34 hours of other architectural courses, and 53 hours of general and elective courses. It is structured into the Architectural Foundation Program (first and second years), and the Architectural Development Program (third and fourth years). Whereas, the Foundation Program's purpose is to provide all students with the information and skills required of all persons involved in the planning and designs of our physical environment, the Development Program provides students with educational alternatives, i.e., they may select from a series of different studio/seminar and lecture/seminar experience.

The intention is to provide an educational milieu so that graduates will possess the following: knowledge, abilities and attitudes:

1. Identify environmental problems and their boundaries including user's needs, values, priorities and resources.
2. Discriminate what is, and what is not, relevant as well as learn to organize the collected information into a useful format.
3. Capacity to abstract ideas and concepts and apply the gained knowledge to different situations.
4. Generate design alternatives.

5. Develop visual simulation techniques in order to evaluate alternatives, predict consequences and communicate with others.

6. Understand humanistic (social, psychological, physical) needs and values and their relationships with the built environment.

7. Creatively perform systematic and intuitive analysis and synthesis of design problems, including examining the what, where, why and how of a problem.

8. Understand the qualitative and basic quantitative characteristics of building systems and their relationship to space-movement organizations.

9. A strong sense of self-discovery and expression, as well as an attitude of participating in establishing society's priorities.

Graduates of the B.A. in Architecture program are eligible for admission into the fifth year program, or they may pursue graduate study in related fields such as planning, urban design and landscape architecture.

Bachelor of Architecture. Admission requires an architectural or environmental related degree and acceptance into the College. The program requires 30 semester credit hours, including 14 hours of architectural studio, 10 hours of other architectural courses and six hours of general studies.

The College seeks its Bachelor of Architecture graduates to possess the following attributes.

1. A more fully developed understanding, knowledge and skills noted in the Bachelor of Arts program.

2. Ability to investigate and understand selected architectural issues.

3. General understanding of architectural practice, including its present and projected trends and developments.

4. Possession of a rather in-depth understanding of an architectural subject through elective course study and its integration with the studio experience which emphasizes self direction.

So that students receive a general and comprehensive architectural education, the following discrete, but related teaching-learning experiences are provided.

The Architectural Studio/Seminar: Besides providing both analytical and synthetic experiences and the opportunity to pursue intense study of physical-environmental related subject(s), these courses create a linkage between the humanistic, physical phenomena, social-psychological, behavioral and perceptional studies.

The Architectural Technology Courses: To provide a basic quantitative and qualitative behavioral understanding of structural and environmental control systems.

The Architectural Lecture/Seminar Electives: Through these courses students will be able to develop a comprehensive understanding of an architectural subject(s).

The Architectural History Lectures: Their purpose is to develop an understanding of the relationships between culture and their physical manifestations.

Independent Studies: When appropriate, a student may pursue a self-directed, faculty approved study, of a particular and significant architectural topic or subject.

General University Requirements: While the College has designated credit hours which must be taken in specific courses, an additional 10 hours are to be chosen by the student in accordance with his or her specific educational objectives.

Directed Electives: In order for a student to achieve a significant level of competence and understanding in a selected area or to achieve a comprehensive education, 33 hours of elective study are required for the Bachelor of Arts in Architecture, and an additional three hours are required for the Bachelor of Architecture degree. These courses must be selected in accordance with a student-selected, faculty-approved plan of study.

The Faculty Advisory Program: Major emphasis is given to a system of faculty advising so that there occurs an orchestration of architectural courses with general required and electives courses in accordance with a student's educational objectives.

Dual Degree/Major Option: It is possible for students to pursue a double degree or major program after the freshman year. Thus, in addition to architecture, a student may pursue a major study in a selected discipline such as history, engineering, business management, social sciences, etc. Any arrangement must meet the University's and College's requirements, as well as be structured in consultation with a faculty adviser and approved by the dean.

Study Abroad Program: Arrangements have been made for students to study architecture for one or two semesters with the University of Copenhagen in Denmark and receive college credit.

B.A. in Architecture Academic Standards: A grade of *C* is the minimum passing grade in studio. Any student receiving less than a grade of *C* when repeating a studio course will be expelled from the COA. In order to graduate, an overall grade point average of 2.0 must be achieved in all required courses offered by the College of Architecture.

Bachelor of Architecture Academic Standards: A grade of *C* is the minimum passing grade in studio. Any student receiving less than a grade of *C* when repeating a studio course will be expelled from the COA. In order to graduate, an overall grade point average of 2.50 must be achieved in all the Bachelor of Architecture required courses offered by the College of Architecture.

THE FOUNDATION PROGRAM

First Year

ARC 1101	7	ARC 1102	7
ENG 1101	3	ARC 1104	1
PHY 1101	4	ENG 1102	3
MAT 1120	3	ES 2101	3
		Mathematics Elective	3*
	17		17

Second Year

ARC 2101	7	ARC 2102	7
ARC 2111	3	ARC 2112	3
Natural Science Elective	4*	Social Science Elective	3*
General Elective	3*	General Elective	3*
	17		16

THE ARCHITECTURAL DEVELOPMENT PROGRAM

Third Year

ARC 3101	5	ARC 3102	5
ARC 3111	3	ARC 3142	3
ARC 3141	3	ARC Elective	3*
ARC Elective	3*	General Elective	3*
General Elective	3*	General Elective	3*
	17		17

Fourth Year

ARC 3103	5	ARC 3104	5
ARC 3143	3	ARC 3144	3
ARC Elective	3*	ARC Elective	3*
General Elective	3*	General Elective	3*
General Elective	3*	General Elective	3*
	17		17

B.A. in Architecture: 135 hours

**Courses to be selected in accordance with program of studies developed with and approved by the faculty adviser.*

ARCHITECTURAL PROFESSIONAL PROGRAM

ARC 5101	7	ARC 5102	7
ARC 5111	2	ARC 5112	2
ARC 5615	3	ARC 5616	3
PHI 3225	3	General Elective	3*
	15		15

Bachelor of Architecture: 30 hours

**Course to be selected with advisement and consent of the fifth year faculty.*

COURSE DESCRIPTIONS

BACHELOR OF ARTS IN ARCHITECTURE

Studio Courses

(101) **ARC 1101. Comprehensive Studio.** 7 credit hours/15 contact hours. Prerequisite: major in Architecture or consent of the dean. Network of lectures, seminars and laboratories dealing with visual ordering systems, environmental design issues and creative problem identification-solving processes, as well as visual and verbal communication skills development.

(102) **ARC 1102. Comprehensive Studio.** 7 credit hours/15 contact hours. Prerequisite: major in Architecture or consent of the dean, and ARC 1101. Similar to 1101 but with emphasis upon examination of structural and other geophysical qualitative characteristics and their relationship with formal-spatial-movement organization.

(104) **ARC 1104. Professional Options and Development.** 1 credit hour/1 contact hour. Examination of major architectural movements, career options and opportunities, discussions of personal goal setting, and counseling on establishment of each student's program of study.

(201) **ARC 2101. Comprehensive Studio.** 7 credit hours/15 contact hours. Prerequisite: major in Architecture, ARC 1102, 1104. Network of lectures, seminars and laboratories with emphasis upon the human needs (sociological psychological and physiological) and values and their relationships with spatial and form organization and design. Student exposed to several programming design methodologies and examination of historical precedents.

(202) **ARC 2102. Comprehensive Studio.** 7 credit hours/15 contact hours. Prerequisite: major in Architecture, ARC 2101. Similar to ARC 2101 with inclusion of structural/geophysical studies, as well as continued development of the student's ability to collect, organize and analyze information, abstract ideas and commencement of synthesis.

(301) **ARC 3101. Architectural Studio.** 5 credit hours/9 contact hours. Prerequisite: major in Architecture, ARC 2102.* Series of studio sections offered with different emphasis and subject concentration in order to provide the student with an opportunity to receive a variety of studio experiences or to pursue an area of study. Student may take one instructor for no more than two of the four studios. Section emphasis to be announced by time of academic registration.

(302) **ARC 3102. Architectural Studio.** 5 credit hours/9 contact hours. Prerequisite: major in Architecture, ARC 3101.* Similar to ARC 3101.

(401) **ARC 3103. Architectural Studio.** 5 credit hours/9 contact hours. Prerequisite: major in Architecture, ARC 3102.* Similar to ARC 3101.

(402) **ARC 3104. Architectural Studio.** 5 credit hours/9 contact hours. Prerequisite: major in Architecture, ARC 3103.* Similar to ARC 3101.

Architectural History Courses

(211) **ARC 2111. Ancient Architecture.** 3 credit hours/3 contact hours. Study of ancient architecture and communities with emphasis upon the built environment as a cultural, political, religious, economical and visual expression.

**Some studies will be limited to only third or fourth-year students, while others are open to both.*

(212) **ARC 2112. Medieval/Renaissance Architecture.** 3 credit hours/3 contact hours. Prerequisite: ARC 2111. Study of medieval and renaissance architecture, and communities with emphasis upon the built environment as a cultural, economical, political, religious and visual expression.

(311) **ARC 3111. Eighteenth-Twentieth Century Architecture.** 3 credit hours/3 contact hours. Prerequisite: ARC 2112. Study of theoretical, technical and cultural background of architecture and planning from the middle of the 18th century through the mid 20th century. Emphasis upon development of ideas as they relate to architectural theories of the 20th century.

Building Systems Courses

(321) **ARC 3141. Building Systems One.** 3 credit hours/3 contact hours. Prerequisite: MAT 1120, PHY 1101. Basic quantitative study of structural and material behavior, as well as continued study of qualitative behavior initiated in the Foundation Program studios. Primary emphasis upon static forces.

(322) **ARC 3142. Building Systems Two.** 3 credit hours/3 contact hours. Prerequisite: ARC 3141. Continuation of ARC 3141.

(421) **ARC 3143. Building Systems Three.** 3 credit hours/3 contact hours. Prerequisite: PHY 1101. Basic quantitative studies of HVAC, electrical, plumbing and lighting systems, as well as continued qualitative studies initiated in the Foundation Program studios and relationship of these systems with structural alternatives. May be taken concurrently with ARC 3141.

(422) **ARC 3144. Building Systems Four.** 3 credit hours/3 contact hours. Prerequisites: ARC 3143. Continuation of ARC 3143.

General Architectural Courses

(350) **ARC 3050. Architectural Elective Studios.** 3 credit hours, contact hours to depend upon the nature of the course. Prerequisite: ARC 2102. Series of lecture/seminar/laboratory courses which include concentrated, in-depth study of selected environmental design/planning subjects. Specific subjects to be announced by time of academic registration.

(390) **ARC 3890. Directed Independent Study.** 1-3 credit hours. Prerequisite: major in Architecture. This course is designed to allow students to pursue faculty directed independent study topics not provided by other departmental offerings. May be repeated for credit with the approval of the College. May not be taken in conjunction with ARC 5101 and ARC 5102.

BACHELOR OF ARCHITECTURE

(501) **ARC 5101. Comprehensive Studio.** 7 credit hours/15 contact hours. A faculty directed studio of primarily short-term exercises in sketch mode, resulting in group reviews and related seminars. In addition to the primary issue of creative architectural design, exercises will also address environmental analysis and problem formulation. The final weeks of the semester will be devoted to definitive development of a student-selected design from among the foregoing exercises.

(502) **ARC 5102. Thesis Studio.** 7 credit hours/15 contact hours. Prerequisite *C* or better evaluations for ARC 5101, 5111 and 5015. Execution of thesis project proposed by the student and accepted by the faculty for ARC 5111. Must be taken concurrently with ARC 5112 and ARC 5616.

(511) **ARC 5111. Thesis Proposal.** 2 credit hours/2 contact hours. A proposal to initiate a thesis project, approval of which is required for admisson to ARC 5102.

A Thesis Advisory Committee, of three, consisting of one COA undergraduate faculty, one fifth year faculty, and one from outside will advise the student in both preparation of the thesis proposal (ARC 5111) and the thesis (ARC 5102). Must be taken concurrently with ARC 5615.

(512) **ARC 5112. Architectural Practice.** 2 credit hours/2 contact hours. The learning objectives of this course include a theoretical understanding of the practice of architecture today in terms of scope, responsibilities and procedures, as well as of emerging alternative forms of architectural practice and roles of the architect. Must be taken concurrently with ARC 5102 and 5616.

**Some studies will be limited to only third or fourth-year students, while others are open to both.*

(515) **ARC 5615. Architectural Seminar.** 3 credit hours/3 contact hours. The purpose of this seminar is to broaden the student's knowledge of the whole decision-making realm of which architecture is but a part and how creative decisions are made by the architect. Integrated with studio exercise application, seminars will address, at all issue levels, the establishment of priorities for design and evaluation. A working and theoretical understanding of the interface of the designer's personal attitudes and the context of a specific project in establishing priorities is a major learning objective. Must be taken concurrently with ARC 5101 and 5111.

(516) **ARC 5616. Architectural Seminar.** 3 credit hours/3 contact hours. The purpose of this seminar is to serve the needs of ARC 5102 in design response to the issues addressed in ARC 5111 and ARC 5615, as well as the following learning objectives.

1. To acquire an understanding of the purpose, creation and maintenance of laws governing buildings;
2. To develop skills in public presentation and discussion;
3. To refine the ability to perceive the issues inherent in the work of others and to respond with meaningful criticism;
4. To deepen the understanding of the systems of building. Must be taken concurrently with ARC 5102 and 5112.

College of Arts and Sciences

The College of Arts and Sciences is composed of the American Studies area and the Departments of Afro-American and African Studies, Biology, Chemistry, Criminal Justice, English, Foreign Languages, Geography and Earth Sciences, History, Mathematics, Performing Arts, Philosophy, Physics, Political Science, Psychology, Religious Studies, Sociology and Anthropology, and Visual Arts.

Baccalaureate degrees are offered in all departments and areas except American Studies and minors are offered in most departments and areas. Medical Technology options are available in Biology and Chemistry. Courses are offered in Arts and Sciences (A&S) and Women's Studies (WST) for the university-wide Interdisciplinary Honors and Women's Studies Programs.

The following graduate degrees are available: Master of Arts in English, Geography, History, Mathematics, Mathematics Education, Psychology and Sociology; Master of Science in Biology, Chemistry and Criminal Justice; and Master of Urban Administration. The College also offers graduate courses in foreign languages, physics, political science, religious studies and anthropology.

ARTS AND SCIENCES
COURSE DESCRIPTIONS

(350) **A&S 3000. Topics in Arts and Sciences. (3)** Prerequisite: junior standing and consent of the sponsoring departments. Topics chosen from the general area of the arts and sciences in order to demonstrate relationships and interdisciplinary influences. May be repeated for credit as topics vary with consent of the student's major department. Can be used toward general degree requirements as indicated each time the course is offered.

(450) **A&S 3400. Non-Residential Studies. (1-15)** Experience outside the University arranged cooperatively by the student and the major department for the purpose of applying, extending, adding to, or elaborating the student's studies in the major; or the service learning summer internship program. All arrangements for a non-residential study must be approved in advance. Arrangements include a written proposal of goals, methods, duration, hours credit, and evaluation procedures. Student projects in the department based non-residential studies will be developed, approved, supervised, and evaluated by the student's major department (in cooperation with others, if appropriate). The service learning summer internship program will be supervised by faculty appointed by the Dean of the College. Grading may be on a pass/no credit basis. Ordinarily to be taken no earlier than the junior year. No more than 15 hours of Non-Residential Studies may be presented toward a degree. (Cannot be used toward general degree requirements.)

Afro-American and African Studies

Chairperson: Frank Porter Graham Professor Maxwell
Assistant Professors: Davidson, Thomas
Lecturers: Nichols, Davis

The major in AAA Studies for the B.A. degree consists of 30 semester hours of AAA Studies courses including AAA 1101,1102,2203,2204, 3290 and 3601. The major in Afro-American and African Studies is divided into four phases which have corresponding courses applicable to each year in the undergraduate curriculum.

PHASE I. WHO AM I? The controlling objective of Phase I is to initiate awareness and exploration. This process involves both personal and intellectual growth in all areas of academic, social and communal relations with yourself and those around you. In an effort to help incoming students adjust to the diversities of the college curriculum, a series of courses has been grouped together to form the Freshman Block.

Fall Semester	**Spring Semester**
Black Experience 1101	Black Experience 1102
English 1101	English 1102
History 1160	Electives
Sociology 1101	African Experience 1104
African Experience 1103	

A major part of the Afro-American and African Studies Program is the Human Relations Lab at the beginning of each year. The lab, commonly referred to as "The Encounter," helps the student in his/her academic course of study. Through a series of three-day sessions, the student is helped to develop skills in communication, group participation, listening, setting goals and effectively pursuing them.

PHASE II. WHY AM I HERE? The controlling objective of Phase II is to deepen the self-awareness begun in Phase I and to awaken in the student an appreciation of Afro-American culture in the aesthetic and social realms. The primary courses for Phase II include:

Afro-American Culture I — a survey course which analyzes the Black experience through literature, music, drama and art.

Afro-American Culture II — a survey course which examines social, political, economic and educational institutions from the Black perspective.

PHASE III. WHERE DID I COME FROM? The controlling objective of Phase III is to develop the skills and provide the framework necessary to help the student move to a higher level of theorizing and exploration. The primary focus of Phase III includes:

Research Methods — the design of a research project from the Black perspective with emphasis on developing sound research methods.

Experiential Learning — the purpose is to draw up from the total learning experience in Phase II and III an hypothesis which the student hopes to validate.

PHASE IV. WHERE DO I GO FROM HERE? The controlling objective of Phase IV is to provide a process through which the student can answer the question, "Where Do I Go From Here?" By means of a senior project and participation in a seminar with others engaged in research in Afro-American and African Studies, the student will attempt to appraise where he is now, given his personal and academic growth in the first three phases: The primary focus for Phase IV includes:

Participation in the Human Relations Lab
Senior Seminar
Senior Project
Certification by the Advisory Committee

From Phase I to Phase IV, the curriculum is structured to aid not only in the academic development of the student but also in the development of his entire being.

Community Projects. Involvement in the Black Community is essential in all phases of the Afro-American and African Studies Program. It is here that students utilize their skills in learning and communication.

PHASE I students may participate in various tutorial programs and give valuable assistance to senior citizens and others. Sample areas of involvement:

Belmont Center
Greenville Center
Metrolina Association for the Blind
Hidden Valley Elementary School
Planned Parenthood
The Charlotte Post
Neighborhood Centers
City Police Department
Bethlehem Center
Legal Aid Society
Mechanics & Farmers Bank

PHASE II AND PHASE III projects emphasize the aesthetic and social realms of Black life open to intuitive explorations and experimental research. Sample areas of involvement:

Oyo Tunji Village
Kwanzaa
Charlotte-Mecklenburg Afro-American Cultural and Service Center
Development of Independent School
Black Business Enterprises
Study Abroad
Charlotte City Police Department
Mental Health & Allied Services
WGIV
Legal Aid Society

PHASE IV projects should be geared to extensive research in both African and Afro-American Studies.

SUGGESTED CURRICULUM LEADING TO A BACHELOR OF ARTS DEGREE IN AFRO-AMERICAN & AFRICAN STUDIES

Freshman Year

Black Experience 1101	3	Black Experience 1102	3
English 1101	3	English 1102	3
History 1160	3	African Experience 1104	3
Sociology 1101	3	Electives	6-9
African Experience 1103	3	Humanities	3
Math 1101 or Natural Science	3-4	Natural Science or Math	3-4
	18-19		15-16

Sophomore Year

AAA 2203	3	AAA 2204	3
AAA 2205	3	AAA 2206	3
Natural Science or Math	3-4	Natural Science or Math	3-4
Social Science	3	Humanities	3
	12-13		12-13

Junior Year

AAA 3290 (Research Methods)	3	A&S 4850 (Non. Res. Studies)	1-15
Electives	12	AAA Elective	1-3
	15		2-18

Senior Year

AAA 3601 (Senior Seminar)	3	AAA 3990 (Senior Project)	3
AAA 490 (Human Relations Lab)	3	AAA Elective (3895)	1-3
Electives	9	Electives	10-12
	15		14-15

COURSE DESCRIPTIONS

(101) **AAA 1101. The Black Experience I. (3)** Personal development of Black awareness; opportunities for exploration of self definition; and development of interpersonal relationship skills; effective community dialogue and action; creation and facilitation of community involvement experience required.

(102) **AAA 1102. The Black Experience II. (3)** Prerequisite: AAA 1101. Further personal development of Black awareness; student orientation to experience involving Black perspective; Afro-American experience as relevant serious topic for study and examination. Community involvement experience required.

(103) **AAA 1103. The African Experience I. (3)** Exploration, from an African perspective, of indigenous African cultures by focusing on historical and socio-psychological problems of traditional Africa.

(104) **AAA 1104. The African Experience II. (3)** Exploration of contemporary issues among indigenous Africans and their impact upon Afro-Americans and Africans in the diaspora.

(201) **AAA 2201. Introduction to Human Relations. (3)** Understanding self and others from a Black perspective. Analysis of theories of personal growth and interaction with society. Participation in workshops and other types of group interaction.

(203) **AAA 2203. Afro-American Culture I. (3)** Analysis of the Afro-American experience through literature, music, drama and art. Research and creative action projects required. Three hours lecture and 2-3 hours of directed community project each week.

(204) **AAA 2204. Afro-American Culture II. (3)** Examination of social, political, economic and educational institutions from the Black perspective. Examination of these institutions in part through directed field work. Three hours lecture and 2-3 hours of directed community project each week.

(205) **AAA 2205. African Culture I. (3)** Survey of social lifestyles in Africa with emphasis on the patterns of social behavior and communal organization that link and relate to the Afro-American experience and heritage. Research required.

(206) **AAA 2206. African Culture II. (3)** Survey of African cultures through literature, music, drama, oral history and art with emphasis on the cultural undertones that link and relate the Afro-American experience and heritage. Research and creative action projects required.

(350) **AAA 3050. Topics in Afro-American and African Studies. (3)** Treatment of a special topic. May be repeated for additional credit as topics vary and with approval of the director.

(390) **AAA 3290. Research Methods. (3)** Prerequisite: completion of Phase II or consent of the instructor. Design of a research project from the Black perspective with emphasis on developing sound research methods.

(401) **AAA 3601. Senior Seminar. (3)** Prerequisite: completion of Phase III, corequisite: AAA 3990. Reading, discussion, reports. Peer critique of conceptualization, methodology and research of senior project. (May be repeated for credit with consent of Advisory Committee.)

(492) **AAA 3692. Colloquium. (3)** Prerequisite: consent of the instructor. A weekly colloquium; research and writing; opportunity for mutual stimulation, critique and problem solving. Not open to majors for credit.

(495) **AAA 3895. Independent Study. (1-3)** Prerequisite: consent of the department. Supervised investigation of a problem or subject in the area of Afro-American and African Studies. May be repeated for credit.

(499) **AAA 3990. Senior Project. (3)** The writing of the senior thesis or work on an equivalent project. (May be repeated for credit with consent of the Advisory Committee.)

American Studies

Emphasis in American Studies

The American Studies emphasis is intended to allow students to focus strongly on various aspects of the culture of the United States while also gaining further variety of background from other facets of the University's curriculum. It is hoped that through this concentration they will gain insight into the interrelatedness of various aspects of American life, both past and present. (Students intending to teach in junior or senior high school should also find such an interdisciplinary emphasis to be very advantageous.)

The American Studies emphasis is open to all students in the University. Students desiring an emphasis in American Studies will take 27 hours in courses allowed toward the emphasis. All American Studies students will take American Studies 3100, Introduction to American Studies, no later than the junior year, sooner if possible. Also, each is to take at least three hours of American Studies 3800. In most cases there will be some overlapping of the requirements for the degree proper and for the American Studies emphasis. Students whose major department offers sufficient courses in the American area will take a minimum of nine hours of American Studies courses in their major and may count a maximum of 12 hours toward both the emphasis and major requirements.

To meet the requirements for the emphasis students also must have at least a 2.0 average in the courses taken at UNCC which are offered for the emphasis. Students in this program will be advised by that person in the department of the major designated to advise American Studies students. Variety of experience is encouraged. American Studies students are also encouraged to take parallel courses during the same semester). The degree will be in the student's major with the American Studies emphasis indicated on the student's transcript.

Minor in American Studies

A minor in American Studies consists of 18 semester hours: AMS 3100 (3 hours), AMS 3800 (3 hours), 6 hours of American-emphasis courses outside the student's major discipline and 6 hours selected from other American Studies courses or American-emphasis courses as listed in the UNCC catalog, or approved by the American Studies coordinator. A grade point average of at least 2.0 is required in courses applied toward the minor.

COURSE DESCRIPTIONS

(350) **AMERICAN STUDIES 3000. Topics in American Studies. (3)** Offered from time to time to supplement courses available, to offer an American focus not available elsewhere in the University, or to provide cross-disciplinary courses with an American focus. For example, courses on American literature and art, American philosophy and politics, etc., might be made available as their being offered is deemed appropriate. May be repeated for credit with permission of the student's adviser. (Not limited to American Studies students. Can be counted as humanities course for general degree requirements.)

(301) **AMERICAN STUDIES 3100. Introduction to American Studies. (3)** To be taken by all students taking an emphasis or a minor in American Studies no later than the junior year and sooner if possible. An introduction to the rationale of American Studies and an application of it to a small span of American chronology to reveal the interrelationships of as many facets of American culture as possible. For example, the student might be helped to see the interrelatedness of such things as philosophy, religion, literature, music, politics, science, business and industry, art, etc., in the United States during a single decade, the significance of that interrelatedness, and how to apply for himself the same approach to other periods. (Not limited to American Studies students. Can be counted as a humanities course for general degree requirements.)

(303) **AMERICAN STUDIES 3800. Independent Study or Directed Reading in American Studies. (3)** May be repeated once for credit, with permission of the student's adviser. (Not limited to American Studies students but should be under the supervision of an American Studies adviser or someone designated by him. Can be counted as a humanities course for general degree requirements.)

The following additional courses have been approved for the American Studies emphasis. However, appropriate deletions may be made from time to time. The American Studies advisers will have up-to-date lists. Also, considerations will be given to approval of other courses of special interest to the student, especially topics courses or individual study, if pertinent to American Studies.

(*Courses with an asterisk are especially recommended for American Studies students.)

English: 2104, 3141, 3142, 3143, 3144, 3145, 3147, 3148, 3149, 3155, 4141, 4145;

History: 1160, 1161, 3179, 3185, 3201, 3202, 3211, 3212, 3213, 3241, 3242, 3251, 3252, 3256, 3259, 3281, 3285, 3288, 3290, 3295, 46101;

Economics: 1101, 2101, 2102, 3170;

Afro-American and African Studies: 1101, 1102, 2203, 2204;

Philosophy: 3217*;

Religious Studies: 2108, 3137;

Criminal Justice: 3102, 3110, 3120, 3140, 3141, 3150, 3151, 3400;

Geography: 2155*, 2160, 3100, 3105;

Earth Science: 3150*

Political Science: 1110*, 3101, 3103, 3105, 3109, 3111, 3112, 3113, 3114, 3115, 3116, 3117, 3118, 3119, 3120, 3121, 3122, 3133, 3157;

Sociology: 2112, 2132, 2171, 3110, 3125, 3480, 4124, 4163, 4632

Department of Biology

Chairperson: Professor Trumbore
Professors: Edwards, Hildreth, Matthews, Menhinick, Oliver, Thomas
Professor Emeritus: Hechenbleikner
Associate Professors: Barden, Mellichamp, Ostrowski, Travis, Watts
Assistant Professors: Bashor, Langsam
Peters, Reynolds

B.A. IN BIOLOGY

A major in biology leading to the B.A. degree consists of 38 semester hours of biology including Introductory Biology 2111 and 2112; Genetics 3166; Cell Biology 3111; Zoology 3233; Botany 3222; and Seminars 3600. In addition one course in three of the four areas: Functional Biology, Population Biology, Developmental Biology and Microbial Biology; and a 4000 level elective. The B.A. degree requires six laboratories (Introductory Biology—2 labs; Botany and Zoology—2 labs; advanced courses—2 labs). Additional requirements are 12 semester hours of chemistry with associated labs, including Chemistry 1101 and 1102, and six semester hours of mathematics.* Care should be taken in selecting electives to ensure completion of University requirements.

Each biology major must show a proficiency through the second semester freshman level of a foreign language either by satisfactory completion of courses 1201 and 1202 in the language or by achieving a satisfactory score on an appropriate test.

B.S. IN BIOLOGY

In addition to the requirements for the B.A. degree, a student working toward the B.S. degree is required to take six additional hours in biology at the course level of 4000 or above for a total of 44 hours. Included in these six credits must be at least one course with laboratory or one separate laboratory course. Chemistry 2131 and 2132, with associated laboratories, Physics 1101 and 1102, and three additional hours of mathematics or computer science (excluding CSC 1101) are required. Careful planning will permit the student to emphasize selected areas of specialization: Botany/Horticulture, Ecology, Genetics/Development, Microbiology, Physiology, Zoology.

MINOR IN BIOLOGY

A minor in Biology requires: (1) BIO 2111 and 2112; (2) Fourteen hours of electives including a minimum of two courses at the 4000 level or above and at least one laboratory course (BIO 4600 and 4900 may not be used to fulfill the 4000 level course requirement); (3) a minimum grade point average of 2.0 in the biology hours submitted for the minor. Students pursuing a Biology minor are responsible for meeting all course prerequisites and corequisites.

PROGRAM APPROACH

The Biology programs can be tailored to fit the individual student's needs. Through course selection, the student can emphasize many areas within Biology: botany and horticulture; zoological sciences, including physiology and development; microbiological sciences; and environmental sciences. Opportunities for individual activity occur at every level from the available tutorial sessions with faculty in the freshman courses to honors research projects in the senior year.

**A course in computer programming language, excluding non-programming courses such as CSC 1101 may be substituted for three hours of mathematics for departmental requirements; however, University requirements in mathematics/language must be met.*

SUGGESTED CURRICULUM FOR THE B.A. DEGREE IN BIOLOGY

Freshman Year

Biology 2111	4	Biology 2112	4
Chemistry 1101, 1101L	4	English 1102	3
English 1101	3	Chemistry 1102, 1102L	4
Mathematics 1103	3	*Mathematics or Computer Science	3
Elective	3	Electives	3-4
	17		17-18

Sophomore Year

Biology 3166, or elective	4	Biology elective (3000 level)	3-8
Chemistry elective	4	Electives	5-8
Biology elective (3000 level)	3-4		
Electives	3-6		
	14-17		13-16

Junior Year

Biology electives	3-8	Biology electives	3-8
Electives	6-11	Electives	6-11
	14-17		14-17

Senior Year

Biology 3600	1	Biology electives	3-8
Biology elective	3-8	Electives	6-9
Electives	6-9		
	13-17		13-17

Computer Science does not fulfill University requirements for mathematics. Computer Science 1101 does not fulfill Biology requirement.

SUGGESTED CURRICULUM FOR THE B.S. DEGREE IN BIOLOGY

Freshman Year

Biology 2111	4	Biology 2112	4
Chemistry 1101, 1101L	4	Chemistry 1102, 1102L	4
English 1101	3	English 1102	3
Mathematics 1103	3	Mathematics 1120, 1141 or 1221	3
Elective	3	Electives	3-4
	16-17		17-18

Sophomore Year

Biology 3166, or elective	4	Biology elective	3-8
Chemistry 2131, 2131L	4	Chemistry 2132, 2132L	4
Mathematics 1221 or 1142 or Computer Science*	3	Electives	6-9
Biology elective (3000 level)	3-4		
Elective	3		
	17-18		13-17

Junior Year

Biology elective	6-8	Biology electives	6-8
Physics 1101	4	Physics 1102	4
Electives	6-9	Electives	3-6
	16-17		16-18

Senior Year

Biology electives	6-8	Biology 3600	1
Electives	6-9	Biology electives	8
		Electives	6
	14-17		15

**Computer Science 1101 does not fulfill requirement.*

B.A. IN BIOLOGY WITH AN OPTION IN MEDICAL TECHNOLOGY*

A student may complete the departmental requirements for the B.A. degree in Biology in three years. Upon satisfactory completion of training in medical technology at a school of medical technology, which has been approved by the National Accrediting Agency for Clinical Laboratory Science for the Committee on Allied Health Education and Accreditation and affiliated with UNCC, the student may receive a B.A. degree in Biology from UNCC.* Gaining admission to an approved school of medical technology is the responsibility of the student. A maximum of 30 hours will be accepted from the school of medical technology. Up to eight hours may be applied toward the requirements for the major in biology. The student must take one course in two of the areas required for the biology major, and have at least a 2.0 grade point average overall and in the major at the end of the junior year. The final 30 hours counted toward the degree and the last 12 hours counted toward the major prior to entering a school of medical technology must be taken at UNCC. The student may obtain information from the departmental adviser concerning Schools of Medical Technology at Mercy, Memorial or Presbyterian Hospitals in Charlotte, which are affiliated with UNCC in this program.

Freshman Year

Biology 2111	4	Biology 2112	4
Chemistry 1101, 1101L	4	Chemistry 1102, 1102L	4
Mathematics 1101 or 1103	3	Mathematics elective	3
English 1101	3	English 1102	3
Electives	3	Elective	3
	17		17

Sophomore Year

Biology 3166	4	Biology elective	3-8
Chemistry 2131, 2131L	4	Chemistry elective	4
Electives	6-7	Electives	7-8
	14-15		14-16

Junior Year

Biology 4255	3-4	Biology 3600	1
Biology elective	3-4	Biology 4191	3-4
Electives	7-8	Electives	10-12
	13-16		14-16

Senior Year

At an approved School of Medical Technology

It is possible to obtain a B.S. degree by careful planning with the adviser.

MASTER OF SCIENCE IN BIOLOGY

The Master of Science in Biology is designed to provide broad training in the areas of development, ecology, physiology, microbiology and genetics. This breadth of training could meet many needs. The program, however, encourages specialization in the form of mandatory thesis research and course participation in specialty or related areas such as biochemistry. Specialization may provide a basis for more advanced studies or enable the student to choose, in addition to teaching, technical and/or health related areas of vocation. Graduates of this program are expected to have both breadth of knowledge in the major biological areas and depth of knowledge and technical experience in a selected field of specialization.

Degree Requirements. The Master of Science in Biology requires successful completion of a minimum of 32 semester hours of course work approved and monitored by a supervisory committee from the Department. Of these, at least 16 semester hours must be in courses open to graduate students only. Of the total, no more than eight hours may be credited for research. All courses offered for the degree must carry grades of "Satisfactory" or "Commendable" as defined in the current graduate grading system.

In addition to course work, each candidate for a degree must pass an oral candidacy examination. Finally, the candidate must prepare and present a thesis acceptable to the supervisory committee and the director of graduate studies at least three weeks before the date of the final oral examination.

Admission to Candidacy. General academic regulations will apply to application for admission to candidacy. In addition to these the applicant should:

1. Have removed any identified entrance deficiencies by the time of application.
2. Have successfully completed the candidacy examination.
3. Taken at least 15 hours of graduate work with at least a *B* average.
4. Satisfied his supervisory committee that he is qualified to become a candidate, i.e., can fulfill the requirements successfully.

COURSE DESCRIPTIONS

Courses for Undergraduates

(395) **BIO 1000. Special Topics in Biology. (1-4)** Prerequisites: vary with course. Special topics for nonmajors in biology. May be repeated for credit as topics vary. Lecture hours and laboratory hours will vary with the courses taught.

(101) **BIO 1110. Principles of Biology (4)** Recommended as a general university elective. Fundamental principles of life. An introduction to biology with a human emphasis. Three lecture hours and one laboratory period of three hours a week.

(102) **BIO 1115. Great Experiments in Biology. (4)** Prerequisite: one course in biology. Recommended as a general university elective. Emphasis on the biological experiments which have had a profound impact on humans and their world. Three lecture hours and one three-hour laboratory period per week.

(301) **BIO 1117. Natural History. (1)** Prerequisite: BIO 1110. Plant and animal identification, ecological aspects of plant and animal distribution, the importance of conservation of natural resources and basic greenhouse horticulture practices. Three lecture hours and one laboratory period of three hours a week.

(207) **BIO 1166. Human Heredity and Diversity. (3)** Prerequisite: BIO 1110 or 2111. Not available for credit if credit has been given for BIO 3166, 4161 or 335. Basic principles of human heredity as applied to individuals and populations. Role of heredity and environment on the expression of physical, mental and behavioral traits. Three lecture hours per week.

(203) **BIO 1259. Bacteriology. (3)** Prerequisite: BIO 1110 or BIO 2111 and one semester of chemistry. Basic physiology of bacteria, fungi, protozoa and viruses, with emphasis on host-parasite interaction and the control and epidemiology of infectious diseases. Three lecture hours a week.

(203L) **BIO 1259L. Bacteriology Laboratory. (1)** Prerequisite or corequisite: BIO 1259. One laboratory period of three hours a week.

(205) **BIO 1273. Human Anatomy and Physiology. (3)** Prerequisite: BIO 1110 or 2111 and one year of high school chemistry or one semester of college chemistry. Basic fundamentals of the anatomy and physiology of the human body as an integrated unit. Three lecture hours a week.

(205L) **BIO 1273L. Human Anatomy and Physiology Laboratory. (1)** Prerequisite or corequisite: BIO 1273. One laboratory period of three hours a week.

(395) **BIO 2000. Special Topics in Biology. (1-4)** Prerequisites: vary with course. Special introductory topics for biology majors. May be repeated for credit as topics vary. Lecture hours and laboratory hours will vary with the courses taught.

(161) **BIO 2041. Natural Resources. (2)** Natural resource conservation and careers, including forestry, fisheries and wildlife management. Two lecture hours a week.

(161L) **BIO 2041L. Natural Resources Laboratory. (1)** Corequisite: BIO 2041. Does not satisfy the departmental lab requirement or the general degree requirement in natural science. Field trips and applied techniques in natural resource management. One laboratory period of three hours a week.

(121) **BIO 2111. Introductory Biology I. (4)** Corequisite or prerequisite: CHE 1101. The first course of a two-semester sequence in biology open to majors and non-majors. Integrated principles of the biology of cells, organisms and populations. Three lecture hours and one lab period of three hours per week.

(122) **BIO 2112. Introductory Biology II. (4)** Prerequisite: 2111. A continuation of BIO 2111. Three lecture hours and one lab period of three hours per week.

(395) **BIO 3000. Special Topics in Biology. (1-4)** Prerequisite: vary with course. Special topics for intermediate level majors in biology. May be repeated for credit as topics vary. Lecture hours and laboratory hours will vary with the courses taught.

(401) **BIO 3005. Integrative Studies in Biology. (3)** No credit toward a biology major, except one hour which may be substituted for Biology 4600. A course for, but not limited to, persons preparing to teach grades 7-12. An integration of the attitudes and techniques necessary to teach laboratory-oriented courses. Three lecture hours a week.

(231) **BIO 3111. Cell Biology. (3)** Prerequisite: BIO 2112; prerequisite or corequisite: CHE 2131. Composition, structure and function of cells.

(231L) **BIO 3111L. Cell Biology Laboratory. (1)** Prerequisite or corequisite: BIO 3111.

(331) **BIO 3166. Genetics. (3)** Prerequisite: BIO 2112; prerequisite/corequisite: CHE 1102. Basic concepts of heredity; principles of classical, molecular, and population genetics. Three lecture hours a week.

(331L) **BIO 3166L. Genetics Laboratory. (1)** Prerequisite or corequisite: BIO 3166. One laboratory period of three hours a week.

(317) **BIO 3202. Horticulture. (3)** Prerequisite: BIO 2112. Principles of horticulture, greenhouse management, environmental factors, production and maintenance of cultivars, and landscaping.

(317L) **BIO 3202L. Horticulture Laboratory. (1)** Prerequisite or corequisite: BIO 3205. Greenhouse work, plant identification, and field trips. One laboratory period of three hours a week.

(211) **BIO 3222. Plant Biology. (4)** Prerequisite: BIO 2112. The morphology, function, reproduction, phylogeny and ecology of plants. Three lecture hours and one laboratory period of three hours a week.

(221) **BIO 3233. Animal Biology. (4)** Prerequisite: BIO 2112. The morphology, function, development, phylogeny and ecology of the principle invertebrate and vertebrate types. Three lecture hours and one laboratory period of three hours a week.

(397) **BIO 3405. Internship in Community Education and Service. (3)** Prerequisites: junior standing, acceptance into the program and approval of the Department. A project oriented, service-learning internship with cooperating community organizations. The Department of Biology has the option of recognizing this credit as fulfilling departmental requirements and granting permission to repeat for credit. Maximum credit toward major is three hours.

(491) **BIO 3600. Seminar. (1)** (May be repeated for credit.) Required of all majors, normally taken during the senior year. Includes a standardized examination in biology. Student presentation of oral and written reports from pertinent biological literature. One hour per week.

(495) **BIO 3701. Honors Research I. (3)** Independent honors project. By invitation; seniors only.

(496) **BIO 3702. Honor Research II. (3)** Prerequisite: BIO 3701. Independent honors project. May be substituted for BIO 3600.

BIO 3800. Tutorial in Biology. (1-4) Prerequisite: consent of department. A course to permit junior and senior biology majors to engage in directed study in their fields of interest. Maximum credit toward major: two hours for B.A.; four hours on B.S. May be repeated for credit.

(497) **BIO 3900. Investigations in Biology. (1-4)** Prerequisite: consent of the Department. A course designed to allow junior and senior biology majors to initiate research projects in their respective fields of interest. Maximum credit toward major: two hours for B.A.; four hours for B.S. May be repeated for credit as topics vary.

Courses for Advanced Undergraduates and Graduate Students

(395) **BIO 4000. Special Topics in Biology. (1-4) (1G-4G)** Prerequisites and credit hour vary with topics. Special topics for advanced undergradustes. May be repeated for credit as topics vary. Lecture hours and laboratory hours will vary with the courses taught.

(451) **BIO 4111. Evolution. (3) (3G)** Prerequisite: BIO 3166 and 3222 or 3233. Theories of evolution and forces which affect gene frequencies. Three lecture hours a week.

((323) **BIO 4133. Parasitology. (4) (4G)** Prerequisite: BIO 3233. Morphology, life cycles, ecology, taxonomy and economic importance of parasites. Three lecture hours and one laboratory period of three hours a week.

(413) **BIO 4139. Epidemiology. (3)(3G)** Prerequisite: BIO 1259 or 4255. History and practices of epidemiology with emphasis on modes of transmission of clinically important infectious agents and the analysis of epidemiological data.

(369) **BIO 4141. Environmental Problems. (3)(3G)** Prerequisite: BIO 3222 and 3233 and CHE 1102. Air, water and land pollution; resource depletion; energy and overpopulation. Three lecture hours a week.

(361) **BIO 4144. Ecology. (3)(3G)** Prerequisites: BIO 3222 and 3233. Interrelationships of organisms and their environment. Three lecture hours a week.

(361L) **BIO 4144L. Ecology Laboratory. (1)(1G)** Prerequisite or corequisite: BIO 4144. One laboratory period of three hours per week.

(461) **BIO 4149. Limnology and Oceanography. (4)(4G)** Prerequisites: BIO 3222 and 3233 and CHE 1102. Geological, physical, chemical and biological aspects of lakes, streams, estuaries and oceans. Three lecture hours and one laboratory period of three hours a week.

(335) **BIO 4161. Human Genetics. (3)(3G)** Prerequisite: BIO 3166. (Credit not available for both BIO 4161 and 1135 (or 335). Inheritance of physical and mental characteristics in humans. Effects of mutation, selection, migration and environment are emphasized. Three lecture hours a week.

(437) **BIO 4169. Cytogenetics. (4)(4G)** Prerequisite: BIO 3111 or 3166. Plant and animal cells, with emphasis on problems of chromosomal organization, function and behavior including the role of chromosome number and aberrations in speciation and evolution. Three lecture hours and one laboratory period of three hours a week.

(477) **BIO 4171. Cell Physiology. (3)(3G)** Prerequisites: BIO 3111 and CHE 2131. The fundamental physiochemical properties of cells. Three lecture hours a week.

(473) **BIO 4191. Immunology. (3)(3G)** Prerequisites: BIO 3111, 3155 and CHE 2131. Cellular, molecular and genetic basis for immunity; physical chemistry of antigens and antibodies and their interactions; defense mechanisms. Three lecture hours a week.

(473L) **BIO 4191L. Immunology Laboratory. (1)(1G)** Prerequisite or corequisite: BIO 4191. One laboratory period of three hours a week.

(431) **BIO 4199. Molecular Biology. (3)(3G)** Prerequisites: BIO 3111, 3155 and CHE 2132. Structural and functional interaction of nucleic acids and proteins in the replication, transcription and translation of genetic material. Three lecture hours a week.

(417) **BIO 4205. Advanced Horticulture. (3)(3G)** Prerequisite: BIO 3202. Topics in ornamental horticulture and landscaping, including greenhouse projects, field trips. Two lecture hours and three hours of lab (TBA) per week.

(319) **BIO 4221. Planty Systematics. (4)(4G)** Prerequisite: BIO 3205 or 3222. Identification and classification of vascular plants, including experimental concepts of speciation. Three lecture hours and one laboratory period of three hours each week.

(325) **BIO 4231. Invertebrate Zoology. (4)(4G)** Prerequisite: BIO 3233. Taxonomy, anatomy, physiology and life histories of selected invertebrates. Three lecture hours and one laboratory period of three hours a week.

(321) **BIO 4233. Vertebrate Zoology. (4)(4G)** Prerequisite: BIO 3233. Taxonomy, anatomy, physiology and life histories of vertebrates. Three lecture hours and one laboratory period of three hours a week.

(355) **BIO 4243. Animal Behavior. (3)(3G)** Prerequisite: BIO 3233. An ethological approach to how animals respond to their environment. Causation, development and adaptive significance of behavior in social systems. Three lecture hours a week.

(355L) **BIO 4243L. Animal Behavior Laboratory. (1)(1G)** Prerequisite or corequisite: BIO 4243. One laboratory period of three hours a week.

(311) **BIO 4255. Microbiology. (3)(3G)** Prerequisites: BIO 3111 and 3166. Morphology, metabolism, physiology, pathogenicity and ecology of micro-organisms. Three lecture hours a week.

(311L) **BIL 4255L. Microbiology Laboratory. (1)(1G)** Prerequisite or corequisite: BIO 4255. One laboratory period of three hours a week.

(373) **BIO 4272. Plant Physiology. (4)(4G)** Prerequisites: BIO 3111 and 3222. Metabolic and physiological processes of plants and conditions which affect or regulate these processes. Three lecture hours and one laboratory period of three hours a week.

(375) **BIO 4273. Animal Physiology. (3)(3G)** Prerequisite: BIO 3111 and 3233. Fundamental control mechanisms which operate to maintain the homeostatic state. Three lecture hours.

(333) **BIO 4282. Plant Growth and Development. (4)(4G)** Prerequisite: BIO 3111 and 3222. Growth and development of plants with emphasis on chemical and environmental control of structural differentiation. Three lecture hours and one laboratory period of three hours a week.

(338) **BIO 4283. Embryology. (3)(3G)** Prerequisite: BIO 3166. Developmental processes occurring chiefly during gametogenesis, fertilization, early embryogenesis and organogenesis. Three lecture hours a week.

(338L) **BIO 4283L. Embryology Laboratory. (1)(1G)** Prerequisite or corequisite: BIO 4283. One laboratory period of three hours a week.

(347) **BIO 4291. Histology. (4)(4G)** Prerequisites: BIO 3111 and 3233. Animal tissues and organs; techniques of preparing tissues for analysis. Three lecture hours and one laboratory period of three hours a week.

(345) **BIO 4293. Comparative Vertebrate Anatomy. (4)(4G)** Prerequisite: BIO 3233. Comparative studies of the anatomy, physiology and functional adaptations of selected vertebrates with emphasis on evolutionary developments, especially in mammals. Three lecture hours and one laboratory period of three hours a week.

(593) **BIO 5000. Advanced Topics in Biology. (1-4)(1-4G)** Prerequisite: a minimum of two area requirements in biology or consent of Department. Courses in selected topics and advanced studies in biology. Lecture and laboratory hours will vary with the topics taught. May be repeated for credit as topics vary.

(562) **BIO 5144. Advanced Ecology. (4)(4G)** Prerequisite: BIO 4144. Energy flow, nutrient cycles, communinity structures, population growth and regulation. Three lecture hours and one laboratory period of three hours a week.

(538) **BIO 5189. Mechanisms in Development. (3)(3G)** Prerequisite: BIO 4283 or CHE 2131. Cellular and molecular bases of differentation; an exploration of the experimental analysis of causal and controlling factors in development. Three lecture and discussion hours a week.

(431L) **BIO 5191. Gene Products Analysis. (1) (1G)** Prerequisites: BIO 3111, 3155, CHE 2132 and consent of the department. Characterization of the structure of certain proteins and its application to analysis of the encoding genetic systems. One laboratory period of three hours a week.

(321) **BIO 5231. Ornithology. (4)(4G)** Prerequisite: BIO 4233 or 4293. Taxonomy, anatomy, physiology and life histories of the birds. Three lecture hours and one laboratory period of three hours a week.

(321) **BIO 5233. Mammalogy. (4)(4G)** Prerequisite: BIO 4233 or 4293. Taxonomy, anatomy, physiology and life histories of the mammals. Three lecture hours and one laboratory period of three hours a week.

(457) **BIO 5234. Wildlife Biology. (3)(3G)** Prerequisite: BIO 4144. Concepts, principles and techniques of wildlife biology. Identification and life histories with emphasis on the value, study attraction, management, conservation andcontrol of wildlife species. Three lecture hours a week.

(457L) **BIO 5234L. Wildlife Biology Laboratory. (1)(1G)** Prerequisite or corequisite: BIO 5234. One laboratory period of three hours a week plus field trips.

(455) **BIO 5237. Animal Communication. (4)(4G)** Prerequisite: BIO 4343 or PSY 3110. Behavioral and structural analysis of sensory mechanisms involved in the transfer of information between individuals with emphasis on bioacoustics. Communicative strategies, analytical techniques, and sound identification of selected species. Three lecture hours and one laboratory period of three hours a week.

(557) **BIO 5251. Pathogenic Bacteriology. (3)(3G)** Prerequisite: BIO 4255. Cellular and molecular interactions of mammalian hosts with procaryotic parasites. Three lecture hours a week.

(557L) **BIO 5251L. Pathogenic Bacteriology Laboratory (1)(1G)** Prerequisite: BIO 4255L. Prerequisite or corequisite: BIO 5251. One laboratory period of three hours a week.

(572) **BIO 5254. Marine Microbiology. (4)(4G)** Prerequisite: BIO 4255 and 4255L. Bacteria, fungi and viruses of marine origin, and their response to the salt, temperature, pressure and nutrient environment of the ocean. Roles of marine microorganisms in public health, pollution and fouling. Three lecture hours and one laboratory period of three hours a week.

(552) **BIO 5255. Advanced Microbiology. (4)(4G)** Prerequisite: BIO 4255 and 4255L. A laboratory-oriented course covering such topics in general microbiology as the preparation and use of cell-free systems, isolation of auxotrophs, transport mechanisms, etc. Lectures in microbial metabolism and physiology and reading on recent developments in microbiology. Two, one-hour lectures and two, two hour laboratory periods per week.

(474) **BIO 5259. Virology. (4)(4G)** Prerequisites: BIO 4255, 4255L and CHE 2132. Morphology, classification, genetics and pathogenicity of bacterial and animal viruses. Three lecture hours and one laboratory period of three hours a week.

(476) **BIO 5273. Comparative Invertebrate Physiology. (3)(3G)** Prerequisite: BIO 4273 and CHE 2131. Maintenance of body fluids; acquisition, processing and distribution of nutrient materials; gas exchange; movement and coordination. Three hours a week.

(476L) **BIO 5273L. Comparative Invertebrate Physiology Laboratory. (1)(1G)** Prerequisite or corequisite: BIO 5273. One laboratory period of three hours a week.

(475) **BIO 5277. Endocrinology. (3)(3G)** Prerequisite: BIO 4273 and CHE 2131. Endocrine glands and their physiological roles in metabolism, growth and reproduction. Three lecture hours a week.

(475L) **BIO 5277L. Endocrinology Laboratory. (1)(1G)** Prerequisite or corequisite: BIO 5277. One laboratory period of three hours a week.

(577) **BIO 5279. Neurobiology. (3)(3G)** Prerequisite: BIO 4273. Physiology and anatomy of nervous systems, especially mamalian. Three lecture hours a week.

(577L) **BIO 5279L. Neurobiology Laboratory. (1)(1G)** Prerequisite or corequisite: BIO 5279. One laboratory period of three hours a week.

(352) **BIO 5293. Vertebrate Palentology. (3) (3G)** Prerequisite: BIO 4293. Evolution of vertebrate animals from the first fishes to man. Three lecture hours a week.

Courses for Graduate Students Only

The following courses are designed to allow the student to obtain an in-depth exposure to certain areas in biology. The tutorial courses will provide a foundation for the student's research endeavor; it may be tailored to supplement the student's research endeavor or tailored to supplement the student's specialization area.

(693) **BIO 6000. Special Topics in Biology. (1-4G)** May be repeated for credit. Prerequisite: consent of Department. Courses in selected topics and advanced studies in biology. Lecture and laboratory hours will vary with the courses taught.

(693) **BIO 6020. Special Topics in Systematic Biology. (1-4G)** Prerequisite: consent of department. Advanced courses in systematic and evolutionary biology. May be repeated for credit as topics vary. Lecture and laboratory hours will vary with the courses taught.

(693) **BIO 6030. Special Topics in Genetics. (1-4G)** Prerequisite: consent of department. Advanced courses in genetics. May be repeated for credit as topics vary. Lecture and laboratory hours will vary with the courses taught.

(693) **BIO 6040. Special Topics in Molecular Biology. (1-4G)** Prerequisite: consent of department. Advanced courses in biochemistry and molecular biology. May be repeated for credit as topics vary. Lecture and laboratory hours will vary with the courses taught.

(693) **BIO 6050. Special Topics in Physiology. (1-4G)** Prerequisite: consent of department. Advanced courses in physiology. May be repeated for credit as topics vary. Lecture and laboratory hours will vary with the courses taught.

(693) **BIO 6060. Special Topics in Developmental Biology. (1-4G)** Prerequisite: consent of department. Advanced courses in developmental biology and embryology. May be repeated for credit as topics vary. Lecture and laboratory hours will vary with the courses taught.

(693) **BIO 6070. Special Topics in Anatomy. (1-4G)** Prerequisite: consent of department. Advanced courses in anatomy and morphology. May be repeated for credit as topics vary. Lecture and laboratory hours will vary with the courses taught.

(693) **BIO 6080. Special Topics in Behavior. (1-4G)** Prerequisite: consent of department. Advanced courses in behavior. May be repeated for credit as topics vary. Lecture and laboratory hours will vary with the courses taught.

(693) **BIO 6090. Special Topics in Ecology. (1-4G)** Prerequisite: consent of department. Advanced courses in ecology. May be repeated for credit as topics vary. Lecture and laboratory hours will vary with the courses taught.

(691) **BIO 6600. Seminar. (1-2G)** Two hours are required. Topics of current emphasis in biology. May be repeated for credit.

(695) **BIO 6800. Tutorial (1-4G)** Directed study in areas of specialization in biology and related fields. May be repeated for credit. Maximum credit toward degree: four hours.

(697) **BIO 6900. Research and Thesis. (1-8G)** May be repeated for credit.

Department of Chemistry

Chairperson: Professor Gibson
Charles H. Stone Professor Emeritus: Burson
Professors: Bush, Crosthwaite, DuBois, Rillema
Professor Emeritus: Kuppers
Associate Professors: Cassen, Howard, Jones, Mattingly, Walsh
Assistant Professor: Daignault

B.S. IN CHEMISTRY

Students planning to start careers as chemists with the baccalaureate degree and those who intend to prepare for graduate study in chemistry should pursue the B.S. degree.

A major in Chemistry leading to the B.S.* degree consists of a minimum of 44 semester hours of chemistry, among which must be included Chemistry 1101, 1102, 1101L, 1102L (or 1106L), 2131, 2132, 2131L, 2132L, 3111, 3141, 3142, 3141L, 3142L, 4111, 4121, 4131 and two semesters of Chemistry 4695. Related work in mathematics and physics must include Mathematics 1141, 1142, and 2141 or 2171 and Physics 2221, 2231, 2221L, and 2231L. Two years of German or Russian language instruction are required for the B.S. degree.

The B.S. curriculum can be tailored to fit individual needs of those preparing for medical and dental schools, those considering graduate work in sciences closely related to chemistry and those desiring a liberal education with concentration in chemistry and related natural sciences.

B.A. IN CHEMISTRY

A major in Chemistry leading to the B.A. degree consists of a minimum of 28 semester hours of chemistry among which must be included Chemistry 1101, 1102, 1101L, 1102L (or 1106L), 2131, 2132, 2131L, 2132L and 3111. Related work must include Mathematics 1141, 1142 and a complete sequence of physics courses selected from one of the following options, A, B or C: A. Physics 1101, 1102; B. Physics 2221, 2231, 2221L, 2231L; or C. Physics 2221, 2221L, 1102. Credit toward the 28 hours required for the B.A. degree will not be given for either CHE 4090 or 4095. Topics courses, such as CHE 3090 and 5090, cannot be included within the 28 hours without prior departmental approval.

Students who complete a major in Chemistry automatically meet the chemistry subject matter requirements, on the secondary level, for teacher certification in North Carolina. Students seeking teacher certification should consult a co-adviser in the College of Human Development and Learning for detailed planning of their professional education.

Chemical engineering, dentistry, medicine, or pharmacy students have the option of majoring in Chemistry. Interested students should consult the catalog section on preparation for professional schools for the appropriate suggested curriculum.

B.A. IN CHEMISTRY WITH AN OPTION IN MEDICAL TECHNOLOGY

A student may complete the departmental requirements for the B.A. degree in Chemistry in three years. Upon satisfactory completion of training in medical technology at a school of medical technology which has been approved by the Accrediting Agency for Clinical Laboratory Science for the Committee on Allied Health Education and Accreditation and UNCC, the student may receive a B.A. degree in Chemistry from UNCC. Gaining admission to an approved school of medical technology is the responsibility of the student. A maximum of 30 hours will be accepted from the school of medical technology. Four of these hours will apply toward the requirements for the major in Chemistry. The student must have at least a 2.0 grade point average, overall and in the major, at the end of the junior year. The final 30 hours counted toward the degree and the last 12 hours counted toward the major prior to entering a school of medical technology must be taken at UNCC. The student may obtain information from his departmental adviser concerning those Schools of Medical Technology at Mercy, Memorial or Presbyterian Hospitals in Charlotte, which are affiliated with UNCC in this program. Individual applications for admission to a particular school of medical technology must be submitted.

**The B.S. degree program is approved by the Committee on Professional Training of the American Chemical Society.*

HONORS PROGRAM IN CHEMISTRY

The recommended curriculum for the B.S. degree in Chemistry includes independent study and seminar presentation during the final year of study. To obtain a degree with Honors in Chemistry, the student must successfully complete two semesters of independent research at the Honors level, two semesters of the senior seminar at the Honors level and at least one specified laboratory course at the Honors level. The student will formally enter the Honors program at the beginning of his/her junior year or halfway through the junior year. Consideration for admission to the program may be initiated by the student or by any faculty member. The Honors Committee of the Chemistry Department will formally approve admission. Details of this program are available from the Chemistry Department.

RECOMMENDED CURRICULUM FOR THE B.A. DEGREE IN CHEMISTRY

Freshman Year

Chemistry 1101*	3	Chemistry 1102*	3
Chemistry 1101L*	1	Chemistry 1106L or 1102L*	1
English 1101	3	English 1102	3
Mathematics 1103**	3	Mathematics 1141**	4
Social Science	3	Social Science	3
Elective	3	Elective	3
	16		17

Sophomore Year

Chemistry 2131	3	Chemistry 2132	3
Chemistry 2131L	1	Chemistry 2132L	1
Mathematics 1142	4	German 2202	4
German 1201	4	Humanities	3
Humanities	3	Electives	6
	15		17

Junior Year

Chemistry 3111	4	Chemistry	3
Mathematics	3	Mathematics	3
Physics	4	Physics	4
German 2201	4	German 2202	4
		Elective	3
	15		17

Senior Year

Chemistry	4	Chemistry	4
Electives	12	Electives	12
	16		16

Students who can demonstrate to the Chemistry Department proficiency in Chemistry 1101, 1102, 1101L and 1102L (Principles of Chemistry) may start with Chemistry 2131 and 2131L. (See Credit by Examination page 67.)

**For proper placement in the mathematics sequence, the student must consult the Mathematics Department.*

RECOMMENDED CURRICULUM FOR THE B.S. DEGREE IN CHEMISTRY

Freshman Year

Chemistry 1101*	3	Chemistry 1102*	3
Chemistry 1101L*	1	Chemistry 1106L*	1
English 1101	3	English 1102	3
Mathematics 1141**	4	Mathematics 1142**	4
German 1201	4	German 1202	4
	15		15

Sophomore Year

Chemistry 2131	3	Chemistry 2132	3
Chemistry 2131L	1	Chemistry 2132L	1
Mathematics 2141 or 2171	3	Physics 2131	3
Physics 2221	3	Physics 2231L	2
Physics 2221L	1	German 2202	4
German 2201	4	Electives	3
	15		16

Junior Year

Chemistry 3141	3	Chemistry 3142	3
Chemistry 3141L	1	Chemistry 3142L	1
Chemistry 3111	4	Chemistry 4111	4
Humanities	3	Humanities	3
Social Science	3	Social Science	3
	14		14

Senior Year

Chemistry 4221	4	Chemistry 4131	4
Chemistry 4090	2	Chemistry 4090	2
Chemistry 4695	1	Chemistry 4695	1
Electives	9	Electives	9
	16		16

**Students who can demonstrate to the Chemistry Department proficiency in Chemistry 1101, 1102, 1101L and 1102L (Principles of Chemistry) may start with Chemistry 2131 and 2131L. (See Credit by Examination page 68.)*

***For proper placement in the mathematics sequence, the student must consult the Mathematics Department.*

RECOMMENDED CURRICULUM FOR THE B.A. IN CHEMISTRY WITH AN OPTION IN MEDICAL TECHNOLOGY

Freshman Year

Chemistry 1101*	4	Chemistry 1102*	3
Chemistry 1101L*	1	Chemistry 1106L*	1
Mathematics 1103**	3	Mathematics 1141**	4
English 1101	3	English 1102	3
Biology 2111	4	Biology 2112	4
	15		15

Sophomore Year

Chemistry 2131	3	Chemistry 2132	3
Chemistry 2131L	1	Chemistry 2132L	1
Mathematics 1142	4	Social Science	3
Social Science	3	Humanities	6
Physics 1101	4	Physics 1102	4
	15		17

Junior Year

Chemistry 3111	4	Chemistry 3112	4
Biology 4415	3	Biology 3135	4
Biology 4415L	1	Biology 4147	3
Elective	4	Biology 4147L	1
Chemistry 3175	3	Elective	3
	15		15

TOTAL 90-92

Senior Year

At an approved school of medical technology

The B.S. degree program is approved by the Committee on Professional Training of the American Chemical Society.

Students who can demonstrate to the Chemistry Department proficiency in Chemistry 1101, 1102, 1101L and 1102L (Principles of Chemistry) may start with Chemistry 2131 and 2131L. (See Credit by Examination, page 68.

**For proper placement in the mathematics sequence, the student must consult the Mathematics Department.*

MASTER OF SCIENCE IN CHEMISTRY

The program leading toward the degree of Master of Science in Chemistry is a research-based program, requiring courses of a broad, general nature. Major emphasis is placed upon the research project and required thesis.

Degree Requirements

The candidate for the degree must present a minimum of 30 semester hours of which at least 15 semester hours must be 6000-level courses which are open to graduate students only. The remaining credit may be earned by taking courses approved for graduate credit. Required courses include CHE 4111, 4121, 4131, 6682 and 6900. Two semester hours of graduate seminar, CHE 6282, and at least one, but up to 16 semester hours of research and thesis credit, CHE 6900, must be presented. In addition, six semester hours from the course group CHE 6115, 6125, 6135, 6145, 6146 or 6060 are required. Departmental approval is necessary before CHE 6060 credit can be used to satisfy this requirement. Any 4000 level or higher mathematics or physics course except those designed for a professional education sequence may be taken for graduate credit. Well prepared students, particularly those with degrees from ACS approved programs will normally achieve CHE 4111, 4121, and 4131 through placement examinations administered after admission. In those cases, CHE 4111, 4121 and 4131 hours may be replaced by research, CHE 6900, or by elective courses. A grade point average of 3.0 (A = 4.0) is required for the degree. In addition, the following specific requirements must be fulfilled:

1. Satisfactory performance on a reading examination in the chemical literature in Russian, German or French. This requirement will be waived with the presentation of passing grades for the first two college years (four semesters or their equivalent) of one of the three acceptable languages. As an alternative to the language requirement, the student may offer proficiency in computer language. Decisions as to the acceptability of the level of computer proficiency will be made by the Chemistry Department.

2. Acceptance of the thesis within six calendar years after admission into the M.S. program as a degree student. This includes a successful defense of the written thesis before a special thesis committee established by the Chemistry Department. The thesis committee shall consist of no fewer than four persons, at least one of whom must be from a department other than Chemistry.

Approval of the program of each student and monitoring his/her progress toward the degree shall be the responsibility of the student's research adviser. Prior to the selection of a research adviser, graduate student progress is monitored by the departmental Graduate Committee.

Continued Enrollment. A student in the chemistry M.S. program is required to maintain satisfactory progress toward the degree. Continued enrollment is at all times subject to review on the basis of academic record. This review is performed by the departmental Graduate Committee.

COURSE DESCRIPTIONS

Separate lecture and laboratory sections — Although the laboratory and lecture sections of CHE 1101, 1102, 1103, 1104, 2131 and 2132 are taught as separate courses, it is strongly recommended that students take the appropriate laboratory concurrently with the lecture. Students with severe scheduling problems or students with course programs which do not require the laboratory may take the lecture without the laboratory. Retention of a laboratory after withdrawing from its associated lecture requires departmental approval.

Students using CHE 1101 and 1102 or CHE 1103 and 1104 to satisfy the university requirements for the B.A. and B.S. Degrees (page 102) must also take CHE 1101L and 1102L, or CHE 1103L and 1104L, respectively.

Courses for Undergraduates

(101) **CHE 1101. Principles of Chemistry. (3)** Prerequisite or corequisite: MAT 101 or 103. A principles-oriented course for science majors. Fundamental postulates and laws of chemistry; the relationship of atomic structure to physical and chemical properties of the elements. Two lecture hours and one recitation hour per week.

(101L) **CHE 1101L. Principles of Chemistry Laboratory. (1)** Prerequisite or corequisite: CHE 101. Experimental investigations involving the fundamental postulates and laws of chemistry. One laboratory period of three hours per week.

(102) **CHE 1102. Principles of Chemistry. (3)** Prerequisite: CHE 1101. Continuation of CHE 1101. Two lecture hours and one recitation hour per week.

(102L) **CHE 1102L. Principles of Chemistry Laboratory. (1)** Prerequisites: CHE 1101 and 1101L.Prerequisite or corequisite: CHE 1102. Continuation of CHE 1101L. One laboratory period of three hours per week.

(103) **CHE 1103. General Chemistry. (3)** Designed primarily for non-science majors; does not qualify as a prerequisite for any course other than CHE 1104. Fundamentals of chemistry and selected topics from inorganic and nuclear chemistry. Three hours per week. (Credit for both 1101 and 1103 will not be given.)

(103L) **CHE 1103L. General Chemistry Laboratory. (1)** Prerequisite or corequisite: CHE 1103. Laboratory investigations into the nature of inorganic compounds. One laboratory period of three hours per week. (Credit for both 1101L and 1103L will not be given.)

(104) **CHE 1104. General Chemistry. (3)** Designed primarily for non-science majors; does not qualify as a prerequisite for any other chemistry course. Prerequisite: CHE 1103. Continuation of CHE 1103, with emphasis on organic chemistry and selected topics in biochemistry. Three lecture hours per week. (Credit for both 102 and 104 will not be given.)

(104L) **CHE 1104L. General Chemistry Laboratory. (1)** Prerequisites: CHE 1103 and 1103L. Prerequisite or corequisite: CHE 1104. Continuation of CHE 1103L, with emphasis on the reactions and characterization of organic compounds. One laboratory period of three hours per week. (Credit for both 1102L and 1104L will not be given.)

(106L) **CHE 1106L. Introduction to Modern Laboratory Methods. (1)** Prerequisite or corequisite: CHE 1102. One laboratory period of three hours per week. The laboratory will consist of open-ended studies on topics compatible with the CHE 1102 lecture materials. Students use techniques common to those used in current chemical research; modern instrumentation is used extensively. The background needed to utilize minicomputers in data acquisition and data reduction is presented. The course is intended for students planning to take additional chemistry courses and can be substituted for the CHE 1102L requirement for all degrees in chemistry.

(225) **CHE 2125. Inorganic Chemistry. (3)** Prerequisite: CHE 1102. Descriptive inorganic chemistry including acid-based and non-aqueous solvent concepts. Three lecture hours a week.

(231) **CHE 2131. Organic Chemistry. (3)** Prerequisite: CHE 1102. Descriptive principles and techniques of organic chemistry and their applications to reactions of aliphatic and aromatic compounds and natural products. Three lecture hours per week.

(231L) **CHE 2131L. Organic Chemistry Laboratory. (1)** Prerequisites: CHE 1102 and CHE 1102L. Prerequisite or corequisite: CHE 2131. Laboratory investigations into the physical and chemical properties of organic compounds. One laboratory period of three hours per week.

(232) **CHE 2132. Organic Chemistry. (3)** Prerequisite: CHE 2131. Continuation of CHE 2131. Three lecture hours per week.

(232L) **CHE 2132L. Organic Chemistry Laboratory. (1)** Prerequisite or corequisite: CHE 2132. Continuation of CHE 2131L. One laboratory period of three hours per week.

(236L) **CHE 2136L. Organic Chemistry Laboratory. (1)** Prerequisite or corequisite: CHE 2132. Laboratory investigation involving a research-type project in lieu of CHE 2132L. Available only upon departmental invitation.

(241) **CHE 2141. Survey of Physical Chemistry. (3)** Prerequisites: CHE 1102, 1102L, MAT 1120 or one semester of calculus (high school or higher). PHY 1101 or one semester of physics (high school or higher). A course designed for students in the life sciences or others desiring a one-semester survey of the physical aspects of chemistry. Application of thermodynamics to chemical reactions, energy transfer processes, and chemical and physical equilibria; the study of reaction rates and mechanisms; structure of gases, liquids and solids; molecular structure and spectroscopy. Three lecture hours per week.

(390) **CHE 390. CHE 3090. Special Topics in Chemistry. (1-4)** Prerequisite: consent of Department. May be repeated for credit. Lecture and/or laboratory hours will vary with the nature of the course taught. Topics chosen from analytical, biochemistry, inorganic, organic and physical chemistry.

(311) **CHE 3111. Quantitative Analysis. (4)** Prerequisite: CHE 1102, 1102L. Introductory course in quantitative and analytical chemistry. Principles of equilibrium, classical and simple instrumental approaches are considered. Two lecture hours and two laboratory periods of three hours each week.

(312) **CHE 3112. Modern Separation Techniques. (4)** Prerequisites: CHE 2131, 2131L and 3111. A theoretical and application course in modern separation techniques with emphasis on liquid and gas chromatography. Two lecture hours and two laboratory periods of three hours each week.

(341) **CHE 3141. Physical Chemistry. (3)** Prerequisites: CHE 1102, 1102L, PHY 2231 and 2231L. Prerequisite or corequisite: MAT 2141 or 2171. The application of classical thermodynamics and the phase rule to chemical equilibrium; electrochemistry; the kinetic theory of gases and elements of statistical mechanics applied to chemical processes; atomic and molecular structure interpreted in quantum mechanical terms. Three lecture hours per week.

(341L) **CHE 3141L. Physical Chemistry Laboratory. (1)** Corequisite: CHE 3141. One laboratory period of three hours per week.

(342) **CHE 3142. Physical Chemistry. (3)** Prerequisite: CHE 3141. Continuation of CHE 3141. Three lecture hours per week.

(342L) **CHE 3142L. Physical Chemistry Laboratory. (1)** Corequisite: CHE 3142. Prerequisite: 3141L. Continuation of CHE 3141L. One laboratory period of three hours per week.

(375) **CHE 3175. Introductory Biochemistry. (3) (3G)** Prerequisite: CHE 2132. (Not available for graduate credit to students in the Chemistry Department.) The chemical constitution of living matter, biochemical processes. Three lecture hours per week.

(375L) **CHE 3175L. Introductory Biochemistry Laboratory. (1) (1G)** Prerequisite: CHE 2132L. Corequisite: CHE 3175. (Not available for graduate credit to students in the Chemistry Department.) A series of laboratory investigations into the chemical constitution of living matter and the biochemical processes of life, chosen to introduce the student to the experimental techniques of modern biochemical research. Eleven four-hour laboratory periods per semester.

(397) **CHE 3197. Internship in Community Education and Service. (1-3)** Prerequisites: junior standing, acceptance into the program and approval of the Department. A project oriented, service learning internship with cooperating community organizations. Credit toward the B.A. and B.S. degrees in Chemistry will not be given for this course. May be repeated for credit with permission of the Chemistry Department. This course is offered on a pass/no credit basis only.

Courses for Advanced Undergraduates and Graduate Students

(411) **CHE 4111. Instrumental Analysis. (4) (4G)** Prerequisites: CHE 3111, 3141, 3141L. A discussion of selected modern instrumental methods of analysis. The discussion includes theory and practice, with considerable attention given to the instrument and elementary electronics involved in the techniques. Two lecture hours and two three-hour laboratory periods per week.

(412) **CHE 4112. Applied Minicomputer Interfacing in Chemistry. (4) (4G)** Prerequisite: departmental approval. Three lecture hours and one laboratory period of three hours each week. The background needed to apply computer interfacing in chemical research, including machine language programming and elementary digital electronics, will be presented, and application of computer automation in chemical research will be discussed. The laboratory will illustrate solutions to solving interfacing problems. No background in programming or electronics is required.

(421) **CHE 4121. Advanced Inorganic Chemistry. (4) (4G)** Prerequisite: CHE 3142, 3142L. Theoretical inorganic chemistry including the application of physico-chemical principles to the study of inorganic systems. Laboratory work involves inorganic preparations and characterization techniques. Three lecture hours and one laboratory period of three hours a week.

(431) **CHE 4131. Advanced Organic Chemistry. (4) (4G)** Prerequisites: CHE 2132, 2132L and 3111. Recent developments in organic chemistry. Laboratory techniques of organic chemistry with emphasis on qualitative organic analysis including instrumental methods. Two lecture hours and two laboratory periods of three hours each week.

(445) **CHE 4145. Advanced Physical Chemistry. (3) (3G)** Prerequisite: CHE 3142. Topics selected from quantum chemistry and/or statistical thermodynamics. Three lecture hours per week.

(475) **CHE 4175. Physical Biochemistry. (3) (3G)** Prerequisites: CHE 2132, 2132L, and 3141. Colloid systems, equilibria in biological fluids, mass and energy transport in fluids and in association with membranes, energy storage and dissipation with relation to specific chemical bonding, enzyme kinetics. Three lecture hours per week.

(495) **CHE 4695. Chemistry Seminar. (1) (1G)** Prerequisite: senior standing. Discussion of recent developments and special topics in chemistry. Written and oral reports are required.

(490) **CHE 4900. Independent Study and Research. (1-4) (1G-4G)** Prerequisite: consent of the instructor overseeing the research. Independent study and research. A senior project in any of these fields of chemistry: organic, physical, analytical, inorganic chemistry or biochemistry; introduction to research. Hours in consideration, library and laboratory to be determined. May be repeated for credit.

(590) **CHE 5090. Special Topics in Chemistry. (1-4) (1G-4G)** Prerequisite: consent of Department. May be repeated for credit. Lecture and/or laboratory hours will vary with the nature of the course taught. Selected topics in chemistry.

Courses for Graduate Students Only

(660) **CHE 660. Special Topics and Investigations. (Variable credit, up to 3G)** Prerequisite: consent of Department. Directed study of topics of current chemical interest. May be repeated for credit.

(615) **CHE 6115. Advanced Analytical Chemistry. (3G)** Prerequisite: CHE 4111. The application of modern analytical methods to chemical problems. Emphasis is upon the chemical information, particularly structural, obtainable from these techniques. Three lecture hours per week.

625 **CHE 6125. Theoretical Inorganic Chemistry. (3G)** Prerequisite: CHE 4121. Group theoretical treatment of current theories of inorganic chemistry. Topics covered: Ligand field theory, molecular orbital theory for complex ions, electronic spectra of complex ions and the magnetic properties of complex ions. Three lecture hours per week.

(635) **CHE 6135. Advanced Organic Chemistry. (3G)** Prerequisite: CHE 4131. A qualitative discussion of modern mechanistic interpretation of the relations between structure and reactivity. Special emphasis is placed on the role of reactive intermediates such as carbonium ions, carbanions, carbenes and radicals. Three lecture hours per week.

(645) **CHE 6145. Chemical Thermodynamics. (3G)** Prerequisite: CHE 3142. The postulatory basis of classical thermodynamics. Problems in chemical thermodynamics. The use of statistical mechanics for calculating thermodynamic functions. Three lecture hours per week.

(646) **CHE 6146. Rates and Mechanisms. (3G)** Prerequisite: CHE 3142. Consideration of chemical kinetics and mechanism schemes, particularly those of current interest. Three lecture hours per week.

(650) **CHE 6150. Seminar-Internship. (Variable credit, up to 3G)** Required for all teaching assistants and for those students planning teaching careers. Prerequisite: consent of Department. Consideration of topics and trends in chemical education. Opportunities for supervised experience in the teaching of college chemistry will be offered. Graded *Pass/No Credit.* May be repeated for credit.

(680P) **CHE 6681. Research Seminar. (1G)** Discussion of recent developments and special topics in chemistry. Graded *Pass/No Credit.*

(680) **CHE 6682. Research Seminar. (1G)** Individual investigation and exposition of the results. May be repeated for credit.

(690) **CHE 6900. Research and Thesis. (Variable credit, up to 16G)** Laboratory research for the thesis.

Department of Criminal Justice

Chairperson: Professor Dean
Professor: Adams
Associate Professors: Hirschel
Assistant Professors: McLaughlin, Vogel
Lecturer: Bing

B.S. IN CRIMINAL JUSTICE

Students desiring the academic study of crime, delinquency and the criminal justice system, a career in the criminal justice field or preparation for graduate study may select the criminal justice curriculum leading to a Bachelor of Science degree. A major in Criminal Justice requires 30 semester hours of criminal justice courses, including CJ 2100—General Criminal Justice, CJ 3100—Criminal Justice Theory, and CJ 3101—Research Methods in Criminal Justice.

A minimum of a *C* average in all criminal justice course work and at least a *C* in CJ 2100, CJ 3100 and CJ 3101 is required. Criminal Justice majors must complete a concentration in Corrections, Law Enforcement, Juvenile Justice, Criminal Justice Research/Planning and Evaluation or General Criminal Justice. Concentrations involve criminal justice courses and courses from other disciplines.

The General Criminal Justice Concentration is available only to students holding an Associate degree with a major in a criminal justice area. Those students may satisfy the requirements for the General Criminal Justice Concentration by the completion of six semester hours of approved 3000 or 4000 level criminal justice course work related to the major completed as part of the associate degree.

Eighteen semester hours of the 30 semester hours of required criminal justice courses must be taken as 3000 and 4000 level course work.

Criminal justice majors must also complete 15 semester hours of approved related work in accounting, anthropology, economics, geography, philosophy, political science, psychology, religion or sociology, involving at least three departments. All majors are required to complete Math 1101 and Math 1222 or a course in social measurement. A course in social measurement may not satisfy the general degree requirements for mathematics.

CONCENTRATIONS

Corrections (12 semester hours)

CJ	3152	Correctional Law
CJ	3160	Victims and the Criminal Justice System
CJ	3150	Community Corrections Subsystems (required)
CJ	3151	Institutional Corrections Subsystems (required)
CJ	3400	Practicum in Corrections
CJ	3800	Directed Individual Study in Corrections
CJ	3000	Topics in Corrections
SOC	3162	Social Control
SW	2180	The Field of Social Work
SW	3181	Social Work Process
SW	3182	Social Work Methods
PSY	2112	Introduction to Behavior Modification
PSY	3150	Introduction to Clinical Process
CLG	3101	Guidance Behavior and Growth

Concentration in Law Enforcement (12 semester hours)

CJ	3160	Victims and the Criminal Justice System
CJ	3140	Law Enforcement Subsystems (required)
CJ	3141	Law Enforcement and Community Relations
CJ	3400	Criminal Justice Practicum: Law Enforcement
CJ	3800	Directed Individual Study: Law Enforcement
CJ	3000	Topics in Law Enforcement
SOC	3162	Social Control
PSC	3115	Civil Rights and Liberties
PSC	3122	Contemporary Urban Problems
HIS	3285	History of Crime and the Police

Concentration in Juvenile Justice (12 semester hours)

CJ	3120	Juvenile Justice Subsystems (Required)
CJ	3121	Juvenile Law
CJ	3400	Practicum in Juvenile Justice
CJ	3800	DIS in Juvenile Justice
CJ	3000	Topics in Juvenile Justice
PSY	2121	Adolescent Psychology
PSY	2112	Introduction to Behavioral Modification
PSY	3112	Consequences and Sources of Behavior Control
PSC	3184	Decision Making in Public Administration
SOC	4173	Juvenile Delinquency
SW	3181	Social Work Process
HSV	4115	Effective Human Systems

Criminal Justice Research Planning and Evaluation (12 semester hours)

CJ	4200	Problems and Decisions in Criminal Justice (required)
CJ	3400	Practicum in Criminal Justice Research and Evaluation
CJ	3800	Directed Individual Study in Criminal Justice and Evaluation
CJ	4000	Topics in Criminal Justice Research
PSC	3210	Political Measurement *(or)*
SOC	3156	Quantitative Sociological Analysis
PSY	3140	Basic Processes in Psychological Assessment
CSC	1100	Algorithmic Languages I *(or)*
CSC	1101	Introduction to Computer Concepts
MAT	2111	Introduction to Operations Research
MAT	2121	Introduction to Probability
PSC	3230	Introduction to Survey Research

General Criminal Justice

An Associate degree with a major or concentration in a criminal justice subfield.

Six (6) hours of 3000 and 4000 level courses in the area of the Associate degree.

MINOR IN CRIMINAL JUSTICE

A minor in Criminal Justice is available to all undergraduates except Criminal Justice majors and requires 18 semester hours: CJ 2100 and 3100 and 12 semester hours of upper-division criminal justice electives.

MASTER OF SCIENCE IN CRIMINAL JUSTICE

The Master of Science in Criminal Justice is designed to prepare individuals to apply social science concepts and analytical methods to the complex and rapidly changing system of justice and social control. The development of a broad understanding of the system and general decision-making and problem solving skills is intended to assist the student in dealing with problems in criminal justice agencies. Graduates of the program will be prepared to work professionally in such areas as law enforcement, corrections and criminal justice management.

Students may enroll in the Master of Science in Criminal Justice on either a full-time or part-time basis. Classes are scheduled in the evening to accommodate the part-time student. Full-time students may carry more than a normal course load only with permission of their advisers.

Degree Requirements. A total of 36 semester hours will be required, of which 18 semester hours must be in courses open only to graduate students. All students must complete the following four core courses: CJ 6100—The Criminal Justice System; CJ 6101—The Nature and Theory of Crime; CJ 6102—Research in Criminal Justice; and CJ 6104—Criminal Justice and Social Control. These

courses should be taken at the beginning of the student's program. In addition, students must complete a graduate level course in statistics or social measurement. Students must satisfy a concentration of 12 semester hours in Law Enforcement, Corrections or Criminal Justice Management. All concentrations must include a minimum of one graduate level course from a discipline other than criminal justice. Students must select the option of either passing a comprehensive written examination after completion of all course work or completing a thesis as part of the 36 hour degree requirement. At least 30 semester hours must be taken in residence. Transfer courses will be accepted at the discretion of the Department and must be consistent with the student's overall program.

Program Approval and Continued Enrollment. Each student shall select a major professor during the first semester of enrollment. The major professor must be a faculty member in the Department of Criminal Justice and shall serve as chairperson of the student's Academic Committee. Each student shall select an Academic Committee, which will be composed of at least two and no more than three faculty members, prior to the completion of 18 semester hours of course work. The academic committee will be responsible for the approval of each student's curriculum. Each student must satisfy University requirements for continued enrollment of graduate students.

Admission to Candidacy. General academic regulations will apply to application for admission to candidacy. Any identifiable entrance deficiencies must be removed by the time of application. In addition, after completion of the core requirements (CJ 6100, CJ 6101, CJ 6102 and CJ 6104) all students must successfully complete a qualifying examination administered by the student's Academic Committee.

COURSE DESCRIPTIONS

Courses for Undergraduates

(200) (300) **CJ 2100. General Criminal Justice. (3)** Components of the criminal justice system reviewed and their interrelatedness assessed; practitioners as professionals discussed; studies of the functions of the system reviewed.

Courses for Advanced Undergraduates

(301) **CJ 3100. Criminal Justice Theory. (3)** Prerequisite: junior standing. Theory constructions methods; tests of theories; criminological and criminal justice system theory.

(302) **CJ 3101. Research Methods in Criminal Justice. (4)** Prerequisite: junior standing. Research designs, data collection and data analysis relevant to criminal justice. Three lecture hours and one laboratory period of two hours a week.

(449) **CJ 3102. Ethics and the Criminal Justice System. (3)** Prerequisite: junior standing. Ethical issues in the administration of justice.

(439) **CJ 3110. Criminal Justice and the Law. (3)** Prerequisite: junior standing. Nature, origins and objectives of the criminal sanction. Substantive and procedural law concerning law enforcement, prosecution and corrections.

(438) **CJ 3120. Juvenile Justice Subsystems. (3)** Prerequisite: junior standing. Nature, sources and types of laws regarding delinquency. Juvenile justice as a component of a larger system of juvenile justice.

CJ 3121. Juvenile Law. (3) Prerequisite: junior standing. Statutory and case law relating to juveniles with special emphasis on the North Carolina Juvenile Code.

(469) **CJ 3130. Corrections Administration (3)** Prerequisite: junior standing. General analysis of organization, methods, systems and procedures, problem-solving, resource management, legal framework and planning pertinent to youth and adult correctional agencies and institutions.

(488) **CJ 3140. Law Enforcement Administration (3).** Prerequisite: junior standing. Examination of law enforcement agencies utilizing different organizational and managerial paradigms. Focus on programs that improve the efficiency and effectiveness of law enforcement.

(489) **CJ 3141. Law Enforcement Behavioral Systems. (3)** Prerequisite: junior standing. Current issues in law enforcement. Specific topics include: community relations, stress, the use of force, and the effect of culture on law enforcement.

(478) **CJ 3150. Community Corrections. (3)** Prerequisite: junior standing. Structure, functions, and effectiveness of community corrections. Emphasis on the deinstitutionalization movement, community-based treatment centers, community service agencies, work release programs and current trends in community corrections.

(479) **CJ 3151. Institutional Corrections. (3)** Prerequisite: junior standing. Structure, functions and effectiveness of correctional institutions. Emphasis is on the history of corrections, classification of offenders, institutionalization, treatment programs, juvenile training schools and the future of corrections.

(437) **CJ 3152. Correctional Law. (3)** Prerequisite: junior standing. Development, substance and operationalization of the law of corrections.

(448) **CJ 3160. Victims and the Criminal Justice System. (3)** Prerequisite: junior standing. The characteristics of crime victims; the relationship between victims and the criminal justice victim assistance and victim compensation programs.

(490) **CJ 3400. Criminal Justice Practicum. (1-6)** Prerequisite: consent of the Department and criminal justice agency, and CJ 2100. Supervised experience in a criminal justice agency. May be repeated for credit up to a maximum of six total hours. Pass/No Credit grading.

(495) **CJ 3800. Directed Individual Study. (1-4)** Prerequisite: junior standing, consent of the Department. Special problems. May be repeated for credit.

(459) **CJ 4200. Problems and Decisions in Criminal Justice. (3) (3G)** Prerequisite: junior standing and consent of the Department. Advanced methodological evaluation of criminal justice policy and programs.

Courses for Advanced Undergraduates and Graduate Students

(499) **CJ 4000. Topics in Criminal Justice. (1-6) (1G-6G)** Prerequisite: consent of the Department. Specialized criminal justice topics. May be repeated for credit.

(621) **CJ 5103. Program Planning and Evaluation in Criminal Justice. (3) (3G)** Prerequisite: junior standing and consent of the department. Applied research will be viewed as the foundation for criminal justice planning; distinctions between basic and applied research will be emphasized. Emphasis will be placed on the theoretical bases of planning in general and criminal justice planning in particular. The role of evaluation as it relates to criminal justice programs will be discussed to assist the student in predicting the success or failure of a project or program.

(651) **CJ 5131. Police Problems and Practices. (3) (3G)** Prerequisite: junior standing and consent of the department. Consideration will be given the role and function of police on the operational level. Discretionary decision-making and the legal, social and institutional contexts in which it occurs are also considered. Application of interpersonal and intrapersonal theories and concepts to police problems and practices will be included.

Courses for Graduate Students Only

(690) **CJ 6000. Topics in Criminal Justice. (3-6G)** Special issues; may be repeated for credit.

(600) **CJ 6100. The Criminal Justice System. (3G)** Major subsystems of the criminal justice system and their linkages.

(610) **CJ 6101. The Nature and Theory of Crime. (3G)** Theory construction and theories of crime.

(620) **CJ 6102. Research in Criminal Justice. (3G)** Research methodology and statistics.

(630) **CJ 6104. Criminal Justice and Social Control. (3G)** The use of civil and criminal law as mechanisms of social control.

(640) **CJ 6120. Criminal Justice Management and Decision-Making. (3G)** Management; supervision; operational problems; decision-making process.

(650) **CJ 6130. Law Enforcement Systems. (3G)** Law enforcement subsystems; relationships to community.

(655) **CJ 6132. Legal Issues in Law Enforcement. (3G)** Major large issues.

(660) **CJ 6140. Prosecution and Adjudication Processes. (3G)** Functions and authority of various roles; procedure.

(670) **CJ 6150. Corrections. (3G)** Correctional and custodial agencies; function; purpose; theory.

(671) **CJ 6151. Correctional Strategies: Rehabilitation and Reintegration. (3G)** Behavior change and control.

(675) **CJ 6152. Legal Issues in Corrections. (3G)** Major legal issues pertaining to corrections.

(680) **CJ 6160. Juvenile Justice Systems. (3G)** Social definitions; social responses; laws - historical development.

(691) **CJ 6800. Directed Individual Study in Criminal Justice. (3G)** Supervised investigation of special topic. May be repeated one time with approval.

(692) **CJ 6900. Thesis. (6G)** Independent research approved by the student's academic committee.

Department of English

Chairperson: Professor Smith
Professors: Burne, Carver, Davis, Ellis, Hedges, Mason, Moose, Varnas, Watson
Associate Professors: Amante, Frazier, Gatlin, Grey, Harper, Jacoby, McGavran
McNair, Moss, Shapiro, Smedman
Assistant Professors: Doheny-Farina, Govan, Patten, West
Lecturers: Beggs, Crisp, J. Davis, Deel, Lutz, Morgan, Weiser

B.A. IN ENGLISH

A major in English leading to the B.A. degree consists of 30 semester hours of course work in English beyond that used to meet the general degree requirement of six hours in English (usually 1101 and 1102). English 2100 is required, and a maximum of six hours of additional 2000-level English courses may be used toward the English major. (Prerequisites for 2000-level courses are English 1101 and 1102, or the equivalent; 1102 may be taken concurrently with a 2000-level course with the consent of the Department.) Requirements above the 2000 level are as follows: at least three hours of English in *each* of the three group-A categories (pre-1800 British literature; post-1800 British literature; and American literature) and at least three hours in *each* of the five group-B categories (literary history; genre or mode; major figure; writing; and language). Lists of which courses fit the seven categories will be given to each student who enters the English major and also always will be available from English Department advisers and the English Department main office. A single course may be used to satisfy two categories only if one of the two categories comes from group-A and one from group-B. It is recommended that students take a 2000-level English course (for majors, preferably English 2100) prior to enrolling in a 3000 or 4000-level literature course.

The English major also must take nine semester hours of related work beyond the 30 hours of English required for the major and in addition to the work used for the General Education Requirements. The purpose of the related work is to make connections between the English major and other humanistic studies. Required are: Speech 1101, plus six hours at the 2000 level or above in Performing Arts, Visual Arts, American Studies, Afro-American and African Studies, Philosophy, Humanities, Speech, Foreign Languages, History, Religious Studies, and/or Women's Studies 3101, and/or Arts and Sciences 4450. (The six hours do not have to be from only one department.) Courses from academic areas other than these may be used for the Related Work Requirement, but only with the approval of the Chairperson of the English Department.

All of the above requirements (in both paragraphs) apply to the regular English major and to those English majors seeking teacher certification. English majors in the secondary or intermediate certification programs are required to take six hours in English language, linguistics and/or composition, beyond 1101-1102, and should consult with the College of Education and Allied Professions regarding other courses required for certification. (For intermediate certification as an English major a student must include English 3103 or 3104.) A program for certification in teaching English as a Second Language also is available. English courses used for certification purposes also usually can be used toward all other requirements for the English major, as appropriate.

(Students seeking early childhood (K-3) certification must major in Education. However, the English Department offers a Helping Specialty, or academic concentration, in language and literature study which Education majors may elect; and these students can also double major in Education and English. Additional information about these options is available from the English Department and the College of Education and Allied Professions.)

Internships in the community and the University are available for upper-level English majors. (See Arts and Sciences 3400 and consult the English Department for further information.)

Reminder: English majors who are seeking certification at any teaching level must meet specific requirements of the Department of English before they are allowed to do student teaching and before they are approved for certification by the Department. Such students should consult the Department early in their careers for these requirements. They include: at least a 2.5 grade point average for English courses taken at UNCC (above the 1000 level) and at least a 2.5 grade point average for all courses taken at UNCC; and at least 24 hours of work in English above the 1000 level (for student teaching).

Note: Whenever a student is admitted to the English Department as a major, that status is conditional upon: making at least a C average for the first nine hours of English taken at UNCC; and upon making at least a *C* average on the papers written for those courses considered together. If the student has the *C* average on courses but not on papers, one may take further work in composition and may qualify fully as an English major if the composition instructor approves. If the above standards are met, the Department will admit the student to full status as an English major.

If the grade point average on English courses falls below 2.0 at any time or composition falls below average, there should be a conference between the student and the adviser about continuing as an English major.

English Department Class Attendance Policy. Students are expected to attend all scheduled English Department classes. Specific attendance policy for each section is left to the teacher.

Awards. The Department gives several undergraduate awards each spring (usually to senior English majors): the Margaret Bryan Award for excellence in scholarship; the James A. Anderson Award for outstanding achievement in the study of English language and literature; the LeGette Blythe Creative Writing Award; the Aristidis Katopodis Award for academic excellence in the study of English; and the Robert M. Wallace Award for excellence in the study of English. Also, each spring the Department awards the Goudes Scholarship to a rising senior English major, for academic excellence and financial need.

MASTER OF ARTS IN ENGLISH

The Master of Arts in English degree program is designed to accommodate students seeking a Master of Arts degree with or without graduate certification in teaching. The program is flexible enough that it can serve the particular needs of the individual student, whether used for general education and enhanced knowledge and understanding, for personal pleasure, for professional advancement, or for further preparation for teaching at the primary or secondary level, or two-year or four-year college level. The student may pursue a broad spectrum of literature, writing, and language; or the student may concentrate in a particular field or area, such as linguistics, writing, American literature, British literature, modern literature, etc. A program for certification in teaching English as a second language also is available.

Program Approval. Approval of the program of each student and advice regarding progress toward the degree will be the responsibility of an adviser appointed by the Department of English at the time of the student's admission.

Course Requirements

1. The program requires a minimum of 30 semester hours of acceptable graduate credit, 15 of which must be for English courses open only to graduate students. Of the 30 hours of graduate credit, 27 hours (six of which may be applied to a thesis if that option is taken) must be for English courses. Three hours of electives may be taken either in English or in related work on the graduate level (e.g., in History, Education, etc.). No more than six hours of English 6890 (Directed Reading) may be applied to the degree without written permission of the Chairman of the Department. [Those students who already have an "A" teacher's certificate and who wish to obtain a "G" certificate at the completion of the degree must have six hours of graduate credit in Education, three hours of which can be part of the minimum 30 hours for the M.A. in English (for a total of 33 hours). Graduate courses in English can be applied toward subject matter requirements for an "A" certificate, but courses so used cannot also be applied toward subject matter requirements for a "G" certificate.]
2. The English courses offered for the degree must include the following:
   a) at least three hours in language, linguistics, rhetoric or writing
   b) at least three hours in American literature
   c) at least three hours in British literature before 1800
   d) at least three hours in British literature after 1800 (English 6125 may be used for this).
3. While a thesis is not required for the degree, those students wishing to write one may do so (see the course description for English 6996).
4. Courses beyond 30 semester hours of graduate credit may be required to remove deficiencies or to satisfy requirements for graduate certification, or may be recommended to develop areas of need, to pursue particular interests, or to gain needed experience.
5. Up to six semester hours of appropriate graduate credit may be accepted for transfer from another accredited institution.

Examination. Each student must satisfactorily complete a comprehensive examination (including both written and oral segments) for the degree. The written examination may not be attempted sooner than three weeks after all English courses for the degree are completed.

Awards. The Ethel Katopodis Award is presented annually to a graduate student for academic excellence in the study of English. A small number of graduate assistantships are available.

Loan Fund. The Anne R. Newman Graduate Student Loan Fund was established in 1979 by graduates of the M.A. program in English in honor of teaching excellence in graduate studies by faculty of the Department. It is available to students in the M.A. in English program.

COURSE DESCRIPTIONS

Courses for Undergraduates

(100) **ENG 1100. English As A Foreign Language. (3)** Limited to students whose native language is not English who may need additional preparation for their regular academic work, primarily composition. Does not count toward an English major. (One should not register for ENG 1100 before taking the English Department's placement test for persons whose primary language is not English.) NOTE: Anyone completing ENG 100 who wishes to use it as part of the six-hour general degree requirement in English will also have to take ENG 1101 or 1102, as decided by the English Department on the basis of proficiency demonstrated at the end of ENG 1100.

(101) **ENG 1101. English Composition. (3)** Extensive practice in and discussion of composition in various forms, for different purposes, and for various audiences. Students experience writing as a means of personal growth, intellectual development, and communication.

(102) **ENG 1102. Composition and Literature. (3)** Prerequisite: ENG 1101. Combined practice in writing and the study of literature. Students become more independent and competent writers, more acute thinkers, and more critical readers of at least two genres of literature.

(214) **ENG 2014. Topics in Writing. (1-3)** Prerequisites: ENG 1101 and 1102. Offers instruction and practice in special types of writing — including such focuses as technical writing or business writing — which are not included in other writing courses. In addition, some sections may be designed for students who need strengthening of composition skills, or may offer instruction in various aspects of effective writing. English 2014 *may not be used* toward the requirements for the English major or for the Humanities part of the General Degree Requirements. The *maximum hours of credit* allowed are six for English 2014 or 2015, or for 2014 and 2015 together.

(215) **ENG 2015. Topics in Writing. (1-3)** Prerequisites: ENG 1101 and 1102. Offers instruction and practice in special types of writing — including such focuses as journalism or writing for publication (exclusive of poetry, drama and fiction) — which are not included in other writing courses. In addition, some sections may offer instruction in various aspects of effective writing. *Not more than* three hours of 2015 may be used toward the requirements for the English major (and that not toward fulfillment of the 12 hours of English language or composition required for certification in English.) *A maximum of* three hours of English 2015 may be used for the Humanities part of the General Degree Requirements. The *maximum hours of credit* allowed for any student are six for English 2015 or 2014, or for 2015 and 2014 together.

(250) **ENG 2050. Topics in English. (3)** Prerequisites: ENG 1101 and 1102. Designed to offer topics of general interest not included in other courses. May be repeated for additional credit with the approval of the English Department. Does not count toward the English major.

(200) **ENG 2100. Approaches to Literature. (3)** Prerequisites: ENG 1101 and 1102. Introductory study and application of major critical approaches to literature, such as historical, psychological, mythological and formalistic. *Required of English majors* and highly recommended as the first post-freshman-level course for the English major.

(201) **ENG 2101. Masterpieces of British Literature I. (3)** Prerequisites: ENG 1101 and 1102. An introduction to British Literature written before 1800, the course also provides backgrounds in the society and culture of the Middle Ages, the Renaissance, and the Age of Reason.

(202) **ENG 2102. Masterpieces of British Literature II. (3)** Prerequisites: ENG 1101 and 1102. An introduction to masterpieces of British Literature written since 1800, the course also provides backgrounds in the society and culture of the Romantic, Victorian and Modern periods.

(203) **ENG 2103. Masterpieces of Modern Fiction. (3)** Prerequisites: ENG 1101 and 1102. Readings in selected novels and short stories written since 1850.

(204) **ENG 2104. Major American Writers. (3)** Prerequisites: ENG 1101 and 1102. Introductory readings in six to eight authors, approximately half from the 19th century and half from the 20th century, both poetry and prose.

(205) **ENG 2105. Introduction to Poetry. (3)** Prerequisite: ENG 1101 and 1102. Representative poems and poets, drawn from several literary periods that introduce students to several poetic genres, to varied treatments of universal themes (such as love, death, disappointment, joy) and to various ideas about poetic imaginations.

(206) **ENG 2106. Film Criticism. (4)** Prerequisites: ENG 1101 and 1102. Introduction to film as an art form. Emphasis will be on critical theory and on critical analysis of the form and the content of different kinds of films—e.g., the narrative film, the silent film, the documentary film, etc.—drawn from the international cinema. Students will apply critical theory to the analysis of professionally made films and will have the option of making their own short films. A viewing lab is required.

(208) **ENG 2108. Introduction to Drama. (3)** Prerequisites: ENG 1101 and 1102. Representative plays of the western world from the classical period to the modern period to introduce students to drama as literature, with consideration of staging, conventions of the theatre, types of drama, and dramatic theory.

(211) **ENG 2111. Masterpieces of World Literature I. (3)** Prerequisites: ENG 1101 and 1102. Readings in Greek, Latin, and Eastern poetry and prose, in translation into English. The genesis of literature in myth, in Eastern religion, and in the Bible, and the development of Greek and Roman literature.

(212) **ENG 2112. Masterpieces of World Literature II. (3)** Prerequisites: ENG 1101 and 1102. Readings in Medieval, Renaissance and Modern European literature, in translation into English. Social and literary changes in the Reformation and Renaissance, the beginnings of new modes of thought in the Age of Enlightenment, and other scientific, literary, religious, philosophical and social changes up to the modern period.

(216) **ENG 2116. Introduction to Technical Communication. (3)** Technical Communication theory (such as organization, audience analysis, and editing) is taught in the context of oral and written formats, such as memoranda, proposals, and reports, and includes formats and content common to students' own discipline. The course counts for general elective credit only.

(232) **ENG 2132. Introduction to Contemporary American English. (3)** An introduction to the study of the sound system and structure of contemporary American English, including characteristics and applications of traditional grammar.

(350) **ENG 3050. Topics in English. (3)** This course is designed to offer special topics not included in other courses. May be repeated for additional credit with approval of the English Department.

(390) **ENG 3090. Major Authors. (3)** The works, ideas, and life of one to three significant authors. With permission of the English Department, may be repeated once for credit as long as the figures treated differ.

(303) **ENG 3103. Children's Literature. (3)** Critical and historical study of children's literature, including picture books, poetry, myth, fable, folk tale, fantasy, and realistic fiction. Central to the course is development of critical principles for assessing the literary merit of children's books. Other possible emphases: the creative process; archetypes and values in the works studied; images of childhood; children's responses to literature; and issues in children's book selection.*

(304) **ENG 3104. Literature for Adolescents. (3)** Introduction to literature for adolescents. Emphases are: (1) critical analysis and aesthetic judgment of literature; (2) study of representative examples from all major genres (poetry, fiction and drama) as well as various sub-genres (such as biography, science fiction, fantasy, and contemporary realistic juvenile fiction) which address the cognitive, emotional and psychological needs of junior high and high school students. Students will practice applying these approaches to adolescent literature and will employ these concepts in critically selecting, evaluating and judging books for adolescents.*

**At least one of these courses is required for English majors seeking intermediate teacher certification.*

(313) **ENG 3113. Milton. (3)** The major poems and selections from the minor works.

(316) **ENG 3116. Shakespeare's Early Plays. (3)** A study of 10 representative plays from the comedies, histories and tragedies written 1590-1600.

(317) **ENG 3117. Shakespeare's Late Plays. (3)** A study of 10 representative plays from the priod 1600-1611, including the late tragedies and tragi-comedies.

(323) **ENG 3123. Wit and Sensibility: 18th Century British Literature. (3)** Poetry and prose in the golden age of satire, with emphasis on Dryden, Pope, Swift. Early Romantic trends in the poetry of Young, Grey, Collins.

(325) **ENG 3125. The Romantic Era, 1785-1832. (3)** The development of the Romantic movement, with emphasis on the works of Wordsworth, Coleridge and other major poets.

(326) **ENG 3126. The Victorian Era to 1870. (3)** Readings in British literature of the middle of the 19th century, reflecting such cultural developments as the rise of industrialism and technology, England's global Empire, the rapidly changing nature of society, the religious crisis, and the beginnings of artistic and literary revolt against the establishment.

(327) **ENG 3127. British Literature from 1870 to World War I. (3)** Readings emphasizing such cultural and literary developments as realism and the impact of science, art for art's sake, problems of religious faith and of sexuality, moral and political issues relating to colonialism, British imperialism, and new techniques in art and literature.

(328) **ENG 3128. British Literature Since World War I. (3)** Readings reflecting developments such as the decline of Britain as a world power, the intellectual disillusionment following World War I, the impact of psychological and social theory, and literary innovation and experimentation.

(341) **ENG 3141. American Literature of the Romantic Period, 1820-1870. (3)** Important writers and ideas of the period of American romanticism, from Irving through Whitman, including such authors as Poe, Emerson, Thoreau, Hawthorne, Melville.

(342) **ENG 3142. American Literature of the Realistic and Naturalistic Periods, 1870-1920. (3)** Important writers and ideas of American literature from Whitman through the period of World War I, including such authors as Dickinson, Twain, Howells, James, Crane, Dreiser, Frost.

(343) **ENG 3143. Modern American Literature, 1920 to Present. (3)** Important writers and ideas of modern American literature, including such authors as Faulkner, Eliot, Hemingway, Cummings.

(344) **ENG 3144. The American Novel of the 19th Century. (3)** Major novelists and traditions from the beginnings of the American novel through the rise of realism, including such novelists as Hawthorne, Melville, Twain, Howells, James.

(345) **ENG 3145. The American Novel of the 20th Century. (3)** Major novelists and traditions from the emergence of naturalism to the present, including such novelists as Crane, Dreiser, Hemingway, Faulkner.

(346) **ENG 3146. Contemporary Jewish-American Literature. (3)** An introduction to the scope and shape of the contemporary Jewish-American literary tradition. Such writers as Bellow, Malamud, Roth, Singer, and Potok will be studied.

(347) **ENG 3147. Early Black American Literature. (3)** A survey of significant writings by black Americans before the Harlem Renaissance.

(348) **ENG 3248. Twentieth Century Black American Literature: Prose. (3)** Intensive study of selected black American 20th century writers of fiction and nonfiction, beginning with the Harlem Renaissance.

(349) **ENG 3149. Twentieth Century Black American Literature: Poetry and Drama. (3)** Intensive study of selected black American 20th century writers of poetry and drama, beginning with the Harlem Renaissance and including the Black Arts Movement.

(355) **ENG 3155. American Folklore. (3)** Introduction to the nature of folklore, with an emphasis on literary folklore, including myths, legends, ballads, songs, tall tales, hero tales and ghost stories. (Does not satisfy the American literature requirement for English majors.)

(356) **ENG 3156. American Indian Literature. (3)** Survey of American Indian literature, ranging from the oral tradition to the poems and novels of contemporary writers (including such writers as N. Scott Momaday, James Welch, and Leslie M. Silko).

(361) **ENG 3761. Junior Honors Topics I. (3)** Prerequisite: permission of the English Department Honor committee *and,* normally, ENG 2111 *and* 2112 or their equivalents. 2111 and 2112 can be taken concurrently with the junior honors courses with permission of the English Department Honors Committee.) Literary exploration of timeless issues faced by the individual through the ages. Readings from several genres and several literary periods.

(362) **ENG 3762. Junior Honors Topics II. (3)** Prerequisites: ENG 3761 *or* permission of the English Department Honors Committee. Literary explorations of the effects of society upon the individual. Readings from several genres and several literary periods.

(471) **ENG 3771. Senior Honors Seminar. (3)** Prerequisites: ENG 3762 *or* permission of the English Department Honors Committee. Critical study of a single literary mode or genre.

(472) **ENG 3772. Senior Honors Colloquium. (3)** Prerequisite: ENG 3771 *or* permission of the English Department Honors Committee. Ideas and their communication, through an intensive study of an author, a movement, or an artistic form. Individual research leading to a significant paper to be shared with the class.

(352) **ENG 3852. Independent Study. (1 to 3)** Prerequisite: consent of the Department. Individual investigations and appropriate exposition of the results. (Unless special permission is granted by the Department chairman, no more than six hours of 3852 may apply toward the English major.) May be repeated for additional credit with approval of the English Department.

Courses for Undergraduates and Graduate Students

In courses at this level, graduate students will be expected to do additional work beyond that required of undergraduates.

(402) **ENG 4002. Women and Literature. (3) (3G)** Selected topics focusing on women and literature (such as images of women, women as writers, and women as literary critics). With permission of the English Department, may be repeated for credit as topics vary. (However, only six hours may be used for the requirements for the English major.) Additional work or project required of graduate students.

(412) **ENG 4112. Medieval British Literature. (3) (3G)** Representative works (excluding those of Chaucer) written in Britain during the Middle Ages, especially the epic and romance, mainly studied as reflections of medieval man's relationship to God, society and other men. An introduction to the earliest British literature as it evolved from pagan folklore under the influence of myth, fantasy, courtly convention, the new religion, foreign invasion, and transformations in language and culture. Most of the works studied in this course will be translated into modern English.

(413) **ENG 4113. British Prose and Poetry of the 16th Century. (3) (3G)** Major works of the Renaissance "Golden Age," including Sidney, Marlowe, Shakespeare (excluding drama). Included are satire, the pastoral romance in prose, and the many new poetic forms that continue to the present day, such as the sonnet and blank verse.

(421) **ENG 4121. The 18th-Century British Novel: Man, Woman, Manners and Morals. (3) (3G)** The novel as narrative form and as mirror of the individual in society. Emphasis on fiction by Defoe, Richardson, Fielding, Stern, Austen, with further readings in the novel of manners and the gothic romance.

(422) **ENG 4122. The Victorian Novel. (3) (3G)** Readings in British fiction during the triumph of the novel in the 19th century, emphasizing major developments in realism, romance, naturalism.

(423) **ENG 4123. The Modern British Novel. (3)(3G)** Representative British novels which embody the cultural and literary developments of the 20th century: the impact of two world wars, the influence of important psychological and economic factors of modern life and their relationships to new techniques in art and literature.

(424) **ENG 4124. Modern Irish Literature. (3)(3G)** Readings in Irish literature since 1885, with consideration of the mythology, folklore, and social history of Ireland as they are expressed in poetry, drama and fiction.

(431) **ENG 4131. British Drama to 1600, Excluding Shakespeare. (3)(3G)** A survey of the development of British drama to 1600, with representative plays from the Mystery-Miracle Cycles, the Morality Plays, and Tudor drama, including Lyly, Kyd, Marlowe, Peele, Greene, Dekker.

(432) **ENG 4132. British Drama From 1600 to 1642, Excluding Shakespeare. (3)(3G)** A survey of Jacobean and Caroline drama, including plays by Jonson, Beaumont and Fletcher, Webster, Middleton, Shirley, Ford.

(433) **ENG 4133. British Drama of Wit and Intrigue, 1660-1780. (3)(3G)** The famous bawdy comedy of manners and the heroic drama of the Restoration, followed by the sentimental comedy and satiric burlesque of the 18th century.

(441) **ENG 4141. Colonial and Early American Literature. (3)(3G)** Origins of American literature, from Colonial times to Washington Irving, including such authors as Edwards, Taylor, Franklin, Crevecoeur, Freneau, Brown.

(445) **ENG 4145. Literature of the American South. (3)(3G)** Selected works of Southern writers which reflect literary and cultural concerns from Colonial times to the present, including such authors as Poe, the early humorists, local color writers, Chopin, Caulkner, Warren, O'Connor, Welty.

(450) **ENG 4150. Contemporary Poetry. (3)(3G)** Poetry in English (including translations) since 1940.

(451) **ENG 4151. Modern Drama. (3)(3G)** Representative Continental, British, and American plays, Sahw to the present.

(452) **ENG 4152. Modern European Literature. (3)(3G)** Selected modern European authors, translated into English, whose works have been of special interest to readers and writers of British and American literature.

(453) **ENG 4153. Contemporary Fiction. (3)(3G)** Selected present-day fiction, with an emphasis upon works from outside the United States and Britain. Works not originally in English will be studied in translation.

(455) **ENG 4155. Pan-African Literature. (3)(3G)** Introduction to significant Pan-African literature, emphasizing the oral tradition, selected works of major authors in the Caribbean and Africa, and the relationships of these traditions to American, British and other literary traditions. Works not originally written in English will be studied in translation.

(461) **ENG 4161. Modern English Grammar. (3)(3G)** A study of the structure of contemporary English, with an emphasis on descriptive approaches. Additional work is required by graduate students.

(465) **ENG 4165. Language and Culture. (3)(3G)** Readings in and discussion and application of the interrelationships between language and culture, including basic introduction to contemporary American dialects and to social contexts of language. Additional work is required by graduate students.

(470) **ENG 4170. Approaches to Teaching English. (1-3)(1-3G)** This course presents various approaches to the teaching of English, including recent theories and research related to literary study. Designed primarily for teaching in grades 7-12.

(601) **ENG 4199. Bibliography and Methodology (3)(3G)** Introduction to the scope, aims, materials and methods of literary scholarship, including criticism.

(305) **ENG 4204. Expositiory Writing. (3)(3G)** Writing of essays, criticism and various forms of exposition.

(406) **ENG 4205. Advanced Expository Writing. (3)(3G)** Prerequisite: ENG 4204. May be repeated once for credit with permission of the English Department.

(306) **ENG 4206. Introductory Creative Writing. (3)(3G)** Open to students of at least sophomore standing who have satisfied the requirements of ENG 1101 and 1102. Writing of fiction, poetry, or drama.

(405) **ENG 4207. Writing Workshop. (3)(3G)** Prerequisite: ENG 4206 or the equivalent. May be repeated once for credit with the consent of the English Department.

(301) **ENG 4210. Greek and Roman Drama In Translation. (3)(3G)** A study of selected plays of Aeschylus, Sophocles, Euripides, Aristophanes, Plautus, Terence, and Seneca with emphasis on dramaturgy and the development of the Greek and Roman theater.

(311) **ENG 4211. Chaucer. (3)(3G)** The poetry of Geoffrey Chaucer, including *The Canterbury Tales* and *Troilus and Criseyde.*

(401) **ENG 4252. Modern Literary Criticism. (3)(3G)** Theories of the modern schools of criticism.

(331) **ENG 4260. History of the English Language. (3)(3G)** Origins and development of the English language, both spoken and written, from its earliest forms to contemporary usage.

(333) **ENG 4263. Linguistics and Language Learning. (3)(3G)** Readings in, discussions of, and application of linguistically oriented theories of language acquisition, directed toward gaining an understanding of language-learning processes and stages.

(400) **ENG 4400. English Composition Practicum. (1-3)(1G-3G)** Prerequisite: consent of the instructor. Through supervised tutorial experience and seminars, this course introduces the student to current developments concerning composition and to a variety of methods for teaching English composition. This course is highly recommended for those planning to teach or those currently engaged in teaching. With permission of the English Department may be repeated once for credit.

Courses for Graduate Students Only

(662) **ENG 6062. Topics in Rhetoric. (3G)** Examination of and/or research concerning selected issues in rhetorical theory or pedagogy. (May be repeated for credit with English Department approval).

(670) **ENG 6070. Topics in English. (3G)** Selected topics of literature and language. May be repeated for credit as topics vary and with English department approval.

(602) **ENG 6102. Interpretations of Literature. (3G)** Demonstrations and practice in the various types of literary analysis, utilizing multi-media techniques where appropriate.

(603) **ENG 6103. The Worlds of Juvenile Literature. (3G)** Poetry, folk literature, modern fantasy, realism, and illustrations in books for young children and adolescents. Analysis of the literary qualities which distinguish the classic from the ephemeral through such critical approaches as the historical, the sociological, the psychological and the archetypal.

(611) **ENG 6111. Shakespeare's Comedies and Histories. (3G)** Source materials, textual problems and stage conventions in selected comedies and history plays illustrating Shakespeare's dramaturgy.

(612) **ENG 6112. Shakespeare's Tragedies. (3G)** Source materials, textual problems and stage conventions of selected tragedies, chosen primarily from the period of the great tragedies, illustrating Shakespeare's dramaturgy.

(613) **ENG 6113. Milton. (3G)** The complete poetry and selections from the prose.

(623) **ENG 6123. The Augustan Age, 1660-1785. (3G)** Close reading of Dryden, Pope, Swift, Johnson, and a consideration of other literary figures and trends, in the light of intellectual and historical currents.

(625) **ENG 6125. The Romantic Era, 1785-1832. (3G)** Development of the Romantic movement, with emphasis on the works of Wordsworth, Coleridge and other major poets.

(626) **ENG 6126. The Victorian Era, 1832-1900. (3G)** Emphasis on Tennyson, Robert Browning, Arnold, Carlyle, Ruskin, Newman.

(641) **ENG 6141. American Romanticism. (3G)** Major writers of the 1830's, 40's, and 50's, including Hawthorne, Melville, Whitman, Emerson, Thoreau, and the Transcendental movement.

(642) **ENG 6142. American Realism and Naturalism. (3G)** Major writers of the two movements before and after the end of the 19th century, including Twain, Howells, James, Crane, Dreiser, Norris.

(643) **ENG 6143. American Modernism. (3G)** Six to eight writers of the period since World War I, both prose and poetry.

(647) **ENG 6147. Perspectives in Afro-American Literature. (3G)** A survey of Afro-American literature, emphasizing the major authors, those relevant historical and social factors, and those specific literary movements which have influenced the development of Afro-American literature.

(661) **ENG 6161. Introduction to Linguistics. (3G)** Introduction to: linguistics, its techniques and objectives; descriptive and historical approaches; language families; language and culture.

(695) **ENG 6495. Internship in College Teaching. (3G)** Prerequisite: ENG 4400 or 4204. Teaching of one section in the UNCC English Department under supervision of English staff. Students will be accepted for internship only near the end of the degree program and upon approval by the Department for the internship. Students will be assigned to teach selected basic courses, and also will participate in periodic conferences and seminars.

(680) **ENG 6680. Seminar in British Literature. (3G)**

(685) **ENG 6685. Seminar in American Literature. (3G)**

(690) **ENG 6690. Directed Reading. (3G)**

(696) **ENG 6996. Thesis. (6G)** Appropriate research and written exposition of that research, which may or may not be outgrowth of work done in previous courses. If the thesis is the outgrowth of previous course work, considerable additional research and exposition must be done beyond that previously undertaken. The proposed thesis work, as well as the final product, will be approved by a committee of three faculty appropriate to the topic, appointed by the chairman of the Department after consultation with the student, on the basis of a written proposal from the student. It is recommended that thesis work not be undertaken until near the end of progress toward the degree. The thesis title is to be shown on the student's final transcript. (A statement of recommendations and requirements for form and procedure is available in the English Department office.)

Department of Foreign Languages

Chairperson: Associate Professor Gleaves
Professors: Gabriel, Saman, Suther
Professors Emeritus: Bush, Macy, Slechta, Turner
Associate Professors: Cernyak, Hopper, Merrill, Miller, Park, Reimer, Rose, Vance
Associate Professor Emeritus: Hoyle
Assistant Professor: McLeod
Lecturers: Sandarg, Shaul

The Department of Foreign Languages has designed its programs to train students in the development of language skills and to help them gain greater insights into foreign cultures through the study of language, literature and culture.

The student choosing language courses under the mathematics/foreign language option must show proficiency at least equal to that obtained by successful completion of a 2202-level language course (see "Foreign Language Option" in the "Degree Requirements" section). He or she is also encouraged to investigate the following options: (1) a language major based on the standard liberal arts model, with or without teaching certification; (2) a double major in a foreign language and another discipline, as increasing numbers of students are doing in these times when the need for communications with other nations is being demonstrated almost daily; (3) the selection of specific courses to complement courses in another subject area; and (4) a concentration in translating, under the 12-hour option offered by the Department.

Teacher Certification in Foreign Languages. The student seeking certification to teach in secondary schools must fulfill the general University requirements, take 24-30 hours in the language specialty, and take the following courses: FL 4200 and all courses required by the College of Education and Allied Professions.

Placement. The Department of Foreign Languages will recommend the placement of a student on a level commensurate with his demonstrated competence at the time of enrollment considered together with his prior language training or experience. Placement exams are given at the beginning of each semester.

Laboratory and practicum. In addition to meeting for three hours of class, all students of modern foreign languages at the 1000 and 2000 levels are required to attend a laboratory or practicum two hours per week. Whenever warranted, instructors in other courses may also assign laboratory work.

Summer Scholarships. Scholarships for summer study and working positions abroad are available to French, German and Spanish students at UNCC. Applicants generally do not have to be language majors to be eligible but they must have completed at least two years of study of the language they propose to use abroad. For detailed information, see scholarship coordinators.

SUGGESTED CURRICULUM LEADING TO A BACHELOR OF ARTS DEGREE IN A FOREIGN LANGUAGE

Freshman Year

English 1101	3	English 1102	3
Social Science	3	Mathematics or Logic	3
Foreign Language 2201	4	Social Science	3
Elective	3	Foreign Language 2202	4
		Elective	3
	13		16

Sophomore Year

Foreign Language 3201	3	Foreigh Language 3202	3
Humanities	3	Foreign Language 3xxx	3
Science with Lab	4	Science with Lab	4
Social Science	3	Math or Logic	3
Elective	3	Elective	3
	16		16

Junior Year

Foreign Language 3xxx	3	Foreign Language 3xxx	3
Foreign Language 3xxx	3	Foreign Language 4xxx	3
Humanities	3	Elective	3
Foreign Language 4xxx	3	Elective	3
Elective	3	Elective	3
	15		15

Senior Year

Foreign Language 4xxx	3	Foreign Language 4xxx	3
Foreign Language 4xxx	3	Elective	3
Elective	3	Elective	3
Elective	3	Elective	3
Elective	3	Elective	3
	15		15

COURSE DESCRIPTIONS
FOREIGN LANGUAGES

Languages offered under these course numbers are designated by alphabetical listing: FLA-Arabic, FLC-Chinese, FLG-Greek, FLH-Hebrew, FLI-Italian, FLJ-Japanese, FLL-Latin, FLP-Portuguese.

(101) **FL 1201. Elementary Foreign Language. (3-4)*** Prerequisite: permission of the Department. Fundamentals of grammar and phonetics, reading, writing and conversation.

(102) **FL 1202. Elementary Foreign Language. (3-4)*** Prerequisite: FL 1201 or permission of the Department. Continuation of FL 1201.

(201) **FL 2201. Intermediate Foreign Language. (3-4)** *Prerequisite: FL 1202 or permission of the Department. Review grammar, conversation, composition and readings based on the culture and civilization.

(202) **FL 2202. Intermediate Foreign Language. (3-4)** *Prerequisite: FL 2201 or permission of the Department. Review grammar, conversation, composition and readings based on students' needs.

(350) **FL 3050. Topics in Language, Literature and Culture. (3)** Studies in a selected field of interest. May be repeated for credit.

(400) **FL 4200. Methods of Teaching A Second Language. (3)(3G)** Prerequisite: junior standing or permission of Department. Current trends and practices of second language teaching with special emphasis on practical applications. Study of problems caused by linguistic and cultural differences, reading, discussions, microteaching and observation of classroom situations at all levels. Required for certification in the teaching of a foreign language and recommended for certification in teaching English as a second language. Research project required of students registered for graduate credit.

Concentration in Translating

Successful completion of FL 3271, 3272, 3273 and 3274 entitles the student to a Certificate in Translating. The Certificate is not equivalent to a major in a foreign language but represents a skill developed at the level of a baccalaureate degree. The Certificate in Translating may be taken in conjunction with a major in any field.

NOTE: All courses in the Certificate sequence involve translating into English from the source language.

(371) **FLT 3271. Introduction to Translating. (3)** Prerequisite: completion through 2202-level of one language other than English, or equivalent. History and present practice of translating: difference between translating and interpreting; psychological differences among speakers of different languages; patterns of language development; non-verbal language; technical and scholarly discourse versus layman's language; theory and limitations of machine translating; demonstrations of interpreting; career options, professional associations and their functions; sources of employment information.

(372) **FLT 3272. Elementary Translating. (3)** Prerequisites: native fluency in English and completion through 2202-level of source language, or equivalent. FLT 3271 is required for students taking the Certificate sequence, and is strongly recommended for any others who wish to take FLT 3272. Comparative analysis of translated texts; questions of restructuring texts and adding or subtracting material; style/audience relationship; simple translations from source language to English; terminiology searches; sight translation.

(471) **FLT 3273. Intermediate Translation. (3)** Prerequisite: successful completion of FLT 3272. Critical analysis of different kinds of English texts and of texts translated into English; translations for specific audiences; précis writing; translation of business, semi-technical, popular-scientific and literary texts; development of working dictionaries in field of specialization; investigation of employment opportunities.

(472) **FLT 3274. Advanced Translation. (3)** Prerequisite: successful completion of FLT 3273. Study of professional journals in the field of translation; specific problems of source/target language equivalents; expansion of working dictionaries; oral reports on work in progress; translation of substantial text(s) in field of specialization. (Texts may be scientific, technical, commercial, scholarly or literary, depending on field of specialization, but in all cases will be works that have not been adequately translated before.)

**The number of hours credit for each course (3-4) is determined by the necessity or availability of a lab program.*

FRENCH

The French major offers three options:

A. The French major leading to the B.A. degree consists of FRE 2201, 2202, 2207, 3201, 3202, 3203, 3209, 4201, 4202 and at least two additional courses at the 4000 level. Related work is to be approved by the Department.

B. The French major leading to a B.A. degree with secondary school teaching includes the same courses as A and in addition, FL 4200, Methods of Teaching a Second Language, all courses required for certification by the College of Education and Allied Professions. Candidates for a degree with certification in elementary teaching may take option "C," plus FL 4200.

C. The modified French major leading to a B.A. degree consists of FRE 2201, 2202, 2207, 3201, 3202, 3203, 3209, 4201, 4202. This option is suggested for double majors.

Minor in French

A minor in French consists of 23 hours above the 1202 level, as follows: FRE 2201, 2202, 2207, 3202, 3203, and 3209. Students who wish to take Commercial French, FRE 2205 and count it toward the minor may do so by substituting Commercial French for FRE 3203, 3209, or 2207.

COURSE DESCRIPTIONS
FRENCH

Courses for Undergraduates

(150) **FRE 1050. Special Approaches to the Study of French. (1-6)** Course may be repeated with change of topic.

(101) **FRE 1201. Elementary French I. (3)** Introduction to the sounds and structure of the French language with emphasis on vocabulary and the skills of listening, speaking, reading, and writing.

(101L) **FRE 1201L. Elementary French Practicum. (1)** Active use of French language skills. Two class hours per week. May not be taken separately from FRE 1201 without permission of the department.

(102) **FRE 1202. Elementary French II. (3)** Prerequisites: FRE 1201 and 1201L, or permission of the department. Continuation of FRE 1201. Three class hours per week.

(102L) **FRE 1202L. Elementary French Practicum. (1)** Continuation of FRE 1201L. Two class hours per week. May not be taken separately from FRE 1202 without permission of the department.

(250) **FRE 2050. Topics in French. (1-3)** Course may be repeated with change of topic. Review of French grammar with conversation and composition based on selected readings. Three class hours and two hours of laboratory work per week.

(201) **FRE 2201. Intermediate French I. (4)** Prerequisites: FRE 1202 and 1202L, or permission of the department. Review of French grammar with conversation and composition based on selected readings. Three class hours and two hours of laboratory work per week.

(202) **FRE 2202. Intermediate French II. (4)** Prerequisites: FRE 2201 and 2201L, or permission of the department. Conversation and composition based on readings in French literature and culture. Film and slide presentations. Three class hours and two hours of laboratory work per week.

(205) **FRE 2205. Commercial French. (3)** Prerequisites: FRE 1202 or equivalent, or permission of the department. A study of the structure and phraseology of French business letters as well as routine messages and communications. Emphasis on commercial, banking, and telecommunication terminology.

(207) **FRE 2207. French Phonetics. (3)** Prerequisites: FRE 1202 or permission of the department. Study of the sounds of the French language, their production and representation by means of the International Phonetic Alphabet. Practice in reading and speaking with proper rhythm and intonation.

(209) **FRE 2209. French Civilization. (3)** Conducted in English. No knowledge of French required. Open to majors or non-majors for elective credit. A study of the French people, past and present, with emphasis on cross-cultural contrasts in attitudes and values.

(350) **FRE 3050. Topics in French. (1-3)** Course may be repeated with change of topic.

(301) **FRE 3201. French Grammar and Conversation. (3)** Prerequisites: FRE 2202 or permission of the department. Review of French grammar and guided conversation on prepared topics. Emphasis on spoken French.

(302) **FRE 3202. French Grammar and Composition. (3)** Prerequisites: FRE 2202 and 2207 or concurrent enrollment in FRE 2207. FRE 3201 recommended. Review of French grammar and guided compositions on prepared topics. Emphasis on vocabulary, idiomatic expressions, and stylistics.

(303) **FRE 3203. Introduction to the Study of French Literature. (3)** Prerequisites: FRE 2207 and 3201, or permission of the department. Development of techniques for literary study through analysis of selected major works in French literature. Readings, discussions, presentations, and *explications de texte.*

(309) **FRE 3209. French Culture and Civilization. (3)** Prerequisites: FRE 3201 or permission of the department. France since the 19th century and cross-cultural views of France and America. Special attention to contemporary France.

Courses for Advanced Undergraduates and Graduate Students

Additional work required for graduate credit.

(403) **FRE 4003. Studies in French Literature. (3) (3G)** Prerequisites: FRE 3203, or permisson of the department. Course may be repeated with change of topic.

(405) **FRE 4005. Studies in the French Language. (3) (3G)** Prerequisite: FRE 3201 and 3202, or permission of the department. Course may be repeated with change of topic.

(407) **FRE 4007. Studies in French Culture and Civilization. (3)(3G)** Prerequisites: FRE 3201, 3202, and 3209, or permission of the department. Course may be repeated with change of topic.

(401) **FRE 4201. Survey of French Literature I. (3)(3G)** Prerequisites: FRE 3203 and FRE 3209, or FRE 3203 and concurrent enrollment of FRE 3209. The major literary movements from the Middle Ages to the Enlightenment, with sample texts. Emphasis on continuity and change.

(402) **FRE 4202. Survey of French Literature II. (3)(3G)** Prerequisites: FRE 3203 and FRE 3209, or FRE 3203 and concurrent enrollment in FRE 3209. The major literary movements from the Enlightenment to the contemporary period, with sample texts. Emphasis on continuity and change.

GERMAN

Major in German

A major in German consists of GER 2201, 2202, 3201, 3202, 3030, 3050 (two courses under different topics), 4203 or 4204, 4010 or 4020, or an additional course on the 3000 or 4000 level. German majors must enroll for one hour of GER 4050 for each GER 3230 or 3050 course they take. In addition, 15 hours of related work (or a declared minor), to be approved by the German language staff, will be required. The program of courses for candidates for teacher certification will be the same as above with requirements specified by the College of Education and Allied Professions.

German majors wishing a Certificate of Translation in German must take the courses listed above for a B.A. in German, but may eliminate one GER 3000 and one GER 4000 course. They must also take FL 3271, 3272, 4271, and 4272.

Minor in German

A minor in German consists of GER 2201, 2202, 3201, 3202, and six additional hours of 3000 or 4000 level German courses, for a total of 20 hours. A student who waived GER 2201 and/or 2202 must take the equivalent number of GER 3000 or GER 4000 level courses.

COURSE DESCRIPTIONS
GERMAN

Courses for Undergraduates

(101) **GER 1201. Elementary German. (3)** Fundamentals of the German language, including speaking, comprehension, reading, writing. Three hours of class per week. Must be accompanied by GER 1201L.

(101L) **GER 1201L. Elementary German Practicum. (1)** Drill, practice, practical application of structures and concepts learned in class. Two hours per week. Must be accompanied by GER 1201.

(102) **GER 1202. Elementary German. (3)** Prerequisite: GER 1201 and 1201L, or equivalent. Fundamentals of the German language, including speaking, comprehension, reading, writing. Must be accompanied by GER 1202L.

(102L) **GER 1202L. Elementary German Practicum. (1)** Drill, practice, practical application of structures and concepts learned in class. Two hours per week. Must be accompanied by GER 1202.

(201) **GER 2201. Intermediate German. (4)** Prerequisite: GER 1202 or permission of the Department. Review grammar, composition and conversation, based upon readings on the culture and civilizations of German-speaking countries. Three hours of class and two hours of laboratory per week.

(202) **GER 2202. Intermediate German. (4)** Prerequisite: GER 2201 or permission of the Department. Continuation of GER 2201. Review grammar, composition and conversation, based upon readings on the culture and civilization of German-speaking countries. Three hours of class and two hours of laboratory per week. Students who wish to continue with advanced offerings in German are advised to select GER 2202.

(330) **GER 3030. Studies in German Culture. (3)** Prerequisite for German major: Satisfactory completion of GER 2202 or equivalent. Conducted in English. No knowledge of German required. A study of the life and thought of German speaking people both past and present. Course topic will concentrate on a geographical area, a particular cultural institution or a particular period. May be repeated as topic changes.

(350) **GER 3050. Studies in German Literature. (3)** Prerequisite for German major: Satisfactory completion of GER 2202 or equivalent. Conducted in English. No knowledge of German required. May be repeated as topic changes.

(301) **GER 3201. Advanced German Grammar, Composition and Conversation I. (3)** Prerequisite: GER 2202 or permission of the Department. For prospective teachers of German and students who want intensive oral and written work in the language. Three class hours per week and laboratory work as assigned by instructor.

(302) **GER 3202. Advanced German Grammar and Composition II. (3)** Prerequisite: GER 2202 or permission of the Department. Intensive review of German grammar. Discussion of prepared topics drawn from newspapers and periodicals. Three class hours per week and laboratory work as assigned by instructor.

(310) **GER 3210. Business German. (3)** Prerequisite: GER 2202 or equivalent. Introduction to the spoken and written language of the German business world; formalities and conventions of business correspondence, import/export, economics, and commercial transactions.

Courses for Advanced Undergraduates and Graduate Students

Additional work required for graduate credit.

(410) **GER 4010. Periods in the History of German Literature. (3)(3G)** (a) Medieval literature, (b) Classicism, (c) Romanticism, (3) Contemporary literature. Prerequisite: two 3000-level courses or permission of the Department. Study of the major writers and works in a given period. Readings, lectures and reports. May be repeated for major credit as topic changes.

(420) **GER 4020. The Chief Genres in German Literature. (3)(3G)** (a) The novel, (b) The drama, (c) Lyric poetry. Prerequisite: two 3000-level courses or permission of the Department. An analysis of a major genre and its development within German literary history. Readings, lectures and reports. May be repeated for major credit as topic changes.

(450) **GER 4050. Special Topics in German. (1-2-3)(1-2-3G)** Prerequisite: one 3000-level course or permission of the instructor. Treatment of a special group or figure in German literature, specialized topic in German culture or advanced work in German language. May be repeated for credit with change of topic.

(403) **GER 4203. Survey of German Literature I. (3)(3G)** Prerequisite: two 3000-level courses or permission of the Department. General introduction to German literature from the Middle Age to the Classical Period. Book reports and class discussion on collateral readings.

(404) **GER 4204. Survey of German Literature II. (3)(3G)** Prerequisite: two 3000-level courses or permission of the Department. German literature since Classicism. Book reports and discussions on collateral readings.

COURSE DESCRIPTIONS
RUSSIAN

(101) **RUS 1201. Elementary Russian. (3)** Fundamentals of the Russian language, including speaking, comprehension, reading, writing. Three class hours per week. Must be accompanied by RUS 1201L.

(101L) **RUS 1201L. Elementary Russian Practicum. (1)** Drill, practice, practical application of structures and concepts learned in class. Two hours per week. Accompanies RUS 1201. May not be taken apart from RUS 1201 without permission of the Department.

(102) **RUS 1202. Elementary Russian. (3)** Prerequisite: Rus 1201 and 1201L. Fundamentals of the Russian language, including speaking, comprehension, reading, writing. Three class hours per week. Must be accompanied by RUS 1202L.

(102L) **RUS 1202L. Elementary Russian Practicum. (1)** Drill, practice, practical application of structures and concepts learned in class. Two hours per week. Accompanies RUS 1202. May not be taken apart from RUS 1202 without permission of the Department.

(201) **RUS 2201. Intermediate Russian. (4)** Prerequisite: RUS 1202 or permission of the Department. Review grammar, with conversation and composition based upon readings in Russian culture and civilization. Three hours of class and two hours of laboratory per week.

(202) **RUS 2202. Intermediate Russian. (4)** Prerequisite: RUS 2201 or permission of the Department. Continuation of grammar, conversation and composition skills, based on readings in Russian literature. Three hours of class and two hours of laboratory per week.

SPANISH

Major in Spanish

A major in Spanish leading to the B.A. degree consists of Spanish 2201, 2202, 3201, 3202, 3203, 3209 or 3210, and 3212 plus 12 hours of Spanish courses on the 4000-level.

Minor in Spanish

A minor in Spanish consists of SPA 2201, 2202 or 2210, 3201 or 3202, 3203 or 3212, 3209 or 3210, and six additional hours at the SPA 3000 or SPA 4000 level, for a total of 23 hours. The student who is waived from SPA 2201 must take at least one additional course at the SPA 3000 or SPA 4000-level.

Courses for Undergraduates

(101) **SPA 1201. Elementary Spanish. (3)** Fundamentals of the Spanish language, including speaking, comprehension, reading, writing. Must be accompanied by SPA 1201L.

(101L) **SPA 1201L. Elementary Spanish Practicum. (1)** Drill, practice, practical application of structures and concepts learned in class. Two hours per week. Must be accompanied by SPA 1201.

(102) **SPA 1202. Elementary Spanish. (3)** Prerequisite: SPA 1201 and 1201L, or equivalent. Fundamentals of the Spanish language, including speaking, comprehension, reading, writing. Three hours per week. Must be accompanied by SPA 1202L.

(102L) **SPA 1202L. Elementary Spanish Practicum. (1)** Drill, practice, practical application of structures and concepts learned in class. Two hours per week. Must be accompanied by SPA 1202.

(250) **SPA 2050. Topics in Spanish.)1-3)** Prerequisite: SPA 2201 or permission of the Department. Study of a particular facet of the Spanish language, culture, or literature. May be repeated for credit as topics vary.

(209) **SPA 2009. Hispanic Literature in English Translation. (3)** Prerequisite: none. Studies of Spanish or Spanish American literature in translation. Not applicable toward Spanish major. May be repeated for credit as topics vary. Course conducted in English.

(201) **SPA 2201. Intermediate Spanish. (4)** Prerequisite: SPA 1202 or permission of the Department. Reinforcement and expansion of skill mastery developed in elementary courses on basis of grammar review and conversation. Three hours of class and two hours of laboratory per week.

(202) **SPA 2202. Intermediate Spanish. (4)** Prerequisite: SPA 2201 or permission of the Department. Extensive practice in oral and written control of the language on basis of readings from Spanish or Spanish American literature. Three hours of class and two hours of laboratory per week.

SPA 2210. Business Spanish. (3) Prerequisite: SPA 2201 or equivalent. Introduction to the spoken and written language of the Hispanic business community. Acquisition and use of financial, legal, and commercial terminology. Three class hours and two lab hours per week. (Alternate to SPA 2202.)

(301) **SPA 3201. Advanced Grammar and Composition. (3)** Prerequisite: SPA 2202 or permission of the Department. Intensive oral and written work in the language. Reports on collateral reading. Two hours of class and two hours of laboratory per week.

(302) **SPA 3202. Advanced Conversation and Composition. (3)** Prerequisite: SPA 2202 or permission of the Department. Intensive oral and written work in the language. Reports on collateral readings. Two hours of class and two hours of laboratory per week.

(303) **SPA 3203. Introduction to Spanish Literature. (3)** Prerequisite: SPA 2202 or permission of the Department. Reading and analysis of representative master works of Spanish literature from its origins through the 20th century.

(309) **SPA 3209. Spanish Civilization and Culture. (3)** Prerequisite: SPA 2202 or permission of the Department. An overview of the cultural heritage of peninsular Spain.

(310) **SPA 3210. Spanish American Civilization and Culture. (3)** Prerequisite: SPA 2202 or permission of the Department. An introduction to the cultural heritage of Spanish America.

(312) **SPA 3212. Introduction to Spanish American Literature. (3)** Prerequisite: SPA 2202 or permission of the Department. Introduction to studies in Spanish American literature from the 16th century through the contemporary period.

(331) **SPA 3231. Spanish Phonetics. (3)** Prerequisite: SPA 2202 or permission of the Department. Detailed analysis of description and production of Spanish sounds. Practical exercises to include phonetic transcription and recordings. Two hours of class and two hours of laboratory a week.

Courses for Advanced Undergraduates and Graduate Students

Additional work required for graduate credit.

(450) **SPA 4050. Selected Readings in Spanish. (1-2-3)(1-2-3G)** Course may be taken for either one, two or three hours of credit. Prerequisite: two 3000-level courses or permission of the Department. Consideration of a predetermined topic. May be repeated for credit as topics vary.

(401) **SPA 4201. Nineteenth-Century Spanish Literature. (3)(3G)** Prerequisite: two 3000-level courses or permission of the Department. Survey of peninsular literature from Costumbrismo through the generation of 1898. Lectures, discussions and reports.

(402) **SPA4202. Twentieth-Century Spanish Literature. (3)(3G)** Prerequisite: two 3000-level courses or permission of the Department. Treatment of major literary developments from the generation of 1898 to present day. Lectures, discussions and reports.

(405) **SPA 4205. The Golden Age of Novel. (3)(3G)** Prerequisite: two 3000-level courses or permission of the Department. *El Lazarillo* through *El Criticon.* Lectures, discussions and reports.

(40) **SPA 4206. The Golden Age of Drama. (3)(3G)** Prerequisite: two 3000-level courses or permission of the Department. Study of works of the leading dramatists of the period. Lectures, discussions and reports.

(410) **SPA 4210. Studies in Spanish American Poetry. (3)(3G)** Prerequisite: two 3000-level courses or permission of the Department. Studies of 19th and 20th-century Spanish American poetry.

(411) **SPA 4211. Studies in Spanish American Prose Fiction. (3)(3G)** Prerequisite: two 3000-level courses or permission of the Department. Studies of 19th and 20th-century Spanish American prose fiction.

(412) **SPA 4212. Studies in Spanish American Theater. (3)(3G)** Prerequisite: two 3000-level courses or permission of the Department. Studies of 20th-century Spanish American theater.

(413) **SPA 4213. Don Quijote. (3)(3G)** Prerequisite: two 3000-level Spanish courses or permission of the Department. Study of Cervantes' masterpiece, which is considered by many critics to be the basis of the modern Western novel.

Department of Geography and Earth Sciences

Chairperson: Professor Stuart
Professors: Clay, Lord, Nunnally, Orr, Pyle, Schul, Steila
Associate Professors: Furuseth, Ingalls, Ives, Walcott
Assistant Professors: Bender, Gibson, Tally
Lecturers: Martin, Moore, Simpson, Smith

The Department offers programs of study in two interrelated fields, geography and earth sciences. Students may earn a B.A. degree or a B.S. degree in either field. The B.A. degree is intended primarily for the general interest student or for those who are pursuing a double major. The B.S. degree is intended primarily for those who wish to seek careers in the field or who intend to pursue graduate study in it.

GEOGRAPHY

The geography curriculum offers students broad flexibility in choosing courses in regional geography, locational analysis and in various methodologies, such as cartography and computer mapping. Students may choose an appropriate selection of courses through consultation with their faculty advisers.

B.A. in Geography

A major in Geography leading to a B.A. degree consists of 29 hours in Geography and Earth Sciences and will include GGY 1100, 1105, 2100, 2101, 2110, and ES 1101. Except for required courses, all work offered for the major must be numbered 2100 or above. Majors are expected to take additional work in computer science, economics, history, political science, sociology and statistics or other related areas.

B.S. in Geography

A major in Geography leading to a B.S. degree consists of 40 hours of Geography and Earth Sciences and will include Geography 1100, 1105, 2100, 2101, 2110, and ES 1101. In addition, a major must complete ENG 2116 (Introduction to Technical Communication), CSC 1100 and MAT 1120. Except for required courses, all work offered for the major must be in courses numbered 2100 or above. Majors are expected to take additional work in computer science, economics, history, political science, sociology and statistics or other related areas.

Minor in Geography

A Minor in Geography consists of 19 hours including GGY 1100 and 1105 and ES 1101, and nine additional hours in geography.

EARTH SCIENCES

The program in Earth Sciences provides students with broad flexibility in choosing courses that deal with many aspects of the earth. Geology, meteorology-climatology, soils-hydrology and environmental analysis are important aspects of the program. Students interested in concentrating in *geology* should plan to take ES 3115 and 4100 as well as other courses indicated by their advisers. Other students may wish to concentrate in *environmental studies* by working out an appropriate program of study with their advisers.

B.A. in Earth Sciences

A major in Earth Sciences leading to the B.A. degree consists of a minimum of 30 semester hours, including ES 1101, 1102, 2200, and 2210. The remaining 15 hours of electives are to be selected from Earth Sciences or Geography courses; however, at least nine hours must be in Earth Sciences and must be from courses numbered 3000 or above. Majors are encouraged to take additional related courses in mathematics, statistics, natural sciences and engineering, depending on the area of specialty or concentration selected.

B.S. in Earth Sciences

A major in Earth Sciences leading to a B.S. degree consists of a minimum of 40 hours in Earth Sciences or Geography and will include ES 1101, 1102, 2200, and 2210. Of the remaining 25 hours, 19 hours must be Earth Sciences courses numbered 1102 or above. Any Geography courses taken to satisfy this 25-hour requirement must be numbered 2000 or above. In addition a major must complete: (1) two semesters (eight hours) of biology, chemistry or physics; (2) two semesters (at least six hours) of math with courses numbered 1404 or above; and (3) ENG 2116 (Introduction to Technical Communication).

Minor in Earth Sciences

A Minor in Earth Sciences consists of 20 hours including either: (a) ES 1102 and 3100 *or* (b) ES 1101, 3230 and 3231 plus 12 additional hours in Earth Sciences courses.

MASTER OF ARTS IN GEOGRAPHY

The M.A. in Geography offers concentration in three areas of study: (1) Location analysis; (2) Urban-Regional Analysis and Planning; and (3) Environmental Analysis. The Location Analysis concentration focuses primarily upon a study of the location of commercial and public facilities. Students interested in retail location, industrial development, market area analysis and transportation should pursue course work in this concentration. Those students interested in planning or a broader perspective of the urban and regional environment should take course work in the Urban-Regional Analysis and Planning concentration. The Environmental Analysis concentration is aimed toward the training of the student in the identification and solution of problems of the physical environment which have important consequences for our society.

Course Requirements. The M.A. in Geography requires a minimum of 36 semester hours of graduate credit. GGY 6100, 6200, 6201 and 7900 and 7901 will be required of all students. Up to 12 hours may be taken in related work. In addition, a minimum of nine semester hours in other 6000-level courses in geography and earth sciences is required.

Six semester hours of course work may be accepted for transfer from other accredited institutions. Course credit may be earned by examination as well. Transfer credits will not be accepted automatically. In any case, transfer credits, related work or credits earned through examination may not together exceed a total of 12 of the minimum 36 hours required.

Continued Enrollment. The progress of each student will be reviewed every semester by the departmental Graduate Advisory Committee and by the student's adviser. Continued enrollment will require a favorable recommendation by the Committee and the adviser. Prompt removal of any entrance deficiencies will be a major criterion for continued enrollment.

Internships. Most students will work as interns in a public or private agency. This work will take place toward the end of a student's program. The departmental internship director will assist students and faculty advisers in placing the student in an internship position that best relates to the interests of the student. The purpose of the internship is to expose the student to the problems and activities of the community and for the student to have the opportunity to apply geographic theory, technique and knowledge to real life practices. The student intern will work on a specific project under the supervision of both the sponsor and a faculty adviser. The results of the internship project will form the basis for the Individual Research Project report. The internship is not required and will be arranged only when it is possible to find a sponsoring company or agency that is willing to support research in the area of the student's interest. If a suitable internship cannot be arranged, the student will be expected to execute an independent research project at the level of a thesis in order to satisfy the 7900-7901 course requirement.

Final Examination. Each student must pass a comprehensive examination over both the discipline generally and in defense of the individual research report, as appropriate. The examination may be both written and oral.

COURSE DESCRIPTIONS
GEOGRAPHY

Courses for Undergraduates

(102) **GGY 1101. World Regional Geography. (3)** A world regional study which emphasizes the distinctly human responses of man to various geographic situations throughout the world. The nature and development of cultural regions will be studied.

(105) **GGY 1105. The Location of Human Activity. (3)** An examination of factors which account for the locational characteristics of economic and other human activities. The locational decision-making process is examined as a means of understanding human spatial behavior.

(201) **GGY 2100. Maps and Graphs. (3)** A study of cartography and its essential processes, with particular emphasis on the map as a communication system, the effective communication of data by means of graphical symbols, map interpretation and discussion of map production techniques.

(201L) **GGY 2101. Cartographic Laboratory. (1)** Prerequisite or corequisite: GGY 201. The laboratory emphasizes development of map construction skills. This includes positive and negative drafting techniques, lettering techniques and the use of scale changing devices. Two hours of laboratory per week.

(331) **GGY 2105. Introduction to Image Interpretation. (3)** Procedures and practice in the recognition, measurement and analysis of features on aerial photographs, thermal images, radar images, LANDSAT scenes and other satellite imagery. One hour lecture and two two-hour labs per week.

(203) **GGY 2110. Introduction to Geographic Research. (3)** Research design and resources in geographic research. Emphasis on spatial applications in summary, statistics; spatial summaries, statistical hypothesis testing; sampling and estimation; association, correlation and regression.

(302) **GGY 2150. Geography of Polar Regions. (3)** Arctic and Antarctic regions, history of exploration, the physical environment and political significance.

(303) **GGY 2155. Geography of the U.S. and Canada. (3)** The geographic structure of the United States and Canada with emphasis on the physical environment and the patterns of human activities.

(304) **GGY 2160. The South. (3)** The culture, environment, population and economy of the southeastern U.S., with emphasis on current trends and their future implications.

(310) **GGY 3000. Topics in Regional Geography. (3)** Examination of major geographical regions of the world. May be repeated for credit as topics vary.

(320) **GGY 3100. The City and Its Region. (3)** Study of the regional system of cities in terms of their size, spacing, historical evolution, functional relationships and future prospects.

(321) **GGY 3105. Internal Structure of the City. (3)** Integrative study of the spatial structure of cities with emphasis on land use patterns and models, transportation systems, residential concentrations, commercial activities and manufacturing zones.

(322) **GGY 3110. Urban Political Geography. (3)** Spatial organization of metropolitan America. How metropolitan residents organize space into territorial units and the human, social and political ramifications of that organization. Spatial consequences of the most common modes of political, administrative and territorial organization.

(344) **GGY 3115. Urban Transportation Problems. (3)** Problems associated with moving goods, people and information in urban areas. Topics include mass transit and pollution problems.

(313) **GGY 3150. Manufacturing Geography. (3)** Factors relating to the nature, locations and development of manufacturing industries. Emphasis upon classification of manufacturers, principal areas of manufacturing and the role of manufacturing in regional development.

(316) **GGY 3155. Retail Location. (3)** Spatial attributes of retailing and related activities. Location patterns, store location research, trade area delineation and consumer spatial behavior.

(340) **GGY 3200. Land Use Planning. (3)** Land use planning, with emphasis on basic planning processes, implementation techniques and strategies, and issues confronting contemporary urban and rural planning.

(341) **GGY 3205. Resource Planning. (3)** Resources of the world, especially as they pertain to population, their use and misuse and present conservational practices as they relate to planning for future resource adequacy.

(342) **GGY 3210. The Region and Planning. (3)** The regional concept and its application to urban and regional planning with emphasis upon techniques used in regional analysis.

(343) **GGY 3215. Environmental Planning. (3)** Interaction and relationships between natural and man-made elements of the environment with emphasis on planning concepts and methodologies used in contemporary environmental planning.

(324) **GGY 3250. World Food Problems. (3) (3G)** Magnitude, consequences, major causes and potential solutions to the world's food problems.

(312) **GGY 3255. Applied Population Analysis. (3)** Population data sources; measuring population change; elementary projection and estimation techniques; spatial sampling; migration; survey design; applications in the public and private sectors.

(314) **GGY 3260. Medical Geography. (3)** Traditional aspects of medical geography including disease mapping, disease ecology and statistical association and more recent social scientific topics, including disease diffusion, health care facilities planning and spatial behavior.

(323) **GGY 3265. Behavioral Geography. (3)** Behavioral approach to environmental decision-making; personal space; territoriality' room and building geography' consumer behavior; activity space; perception of wilderness and natural hazards; communication biases.

Courses for Advanced Undergraduates and Graduate Students

(402) **GGY 4000. Selected Topics in Geography. (3)(3G)** Prerequiite: consent of instructor. An intensive study of topics in geography from such areas as urban, manufacturing, tertiary activity, transportation, primary activity and political geography. Topics vary from semester to semester. May be repeated for credit as topics vary.

(332) **GGY 4100. Cartographic Techniques. (3) (3G)** Prerequisite: GGY 2100. Preparation of maps, figures and charts at a professional level of competence. Techniques to be emphasized include scribing and various related photographic processes. Two laboratories of three hours each per week.

(333) **GGY 4105. Cartographic Design and Map Construction. (3) (3G)** Design process and basic map construction techniques with particular emphasis on the graphic elements of map design, planning map design, creating visual hierarchies, the uses of color, and basic mechanical color separation.

(334) **GGY 4110. Computer Mapping. (3) (3G)** Prerequisites: GGY 2100 and CSC 1100 or consent of instructor. Automated methods of gathering, storing, manipulating and displaying spatial data. Emphasis on the use of existing software and the design and implementation of geographic data structures and algorithms.

(335) **GGY 4115. Geographic Information Systems. (3) (3G)** Development, current state-of-the-art and future trends in geographic information processing. Emphasis placed on data gathering, storage, and retrieval, analytical capabilities and display technologies. Case studies used to examine the use of such systems by private industry, local and federal governments, and planning agencies for uses such as natural resource inventory and management, urban and regional planning, and marketing. Class project in which students design a geographic information system for a local application.

(480) **GGY 4400. Internship in Geography. (3-6) (3-6G)** Prerequisite: consent of the Department. Research and/or work experience designed to be a logical extension of a student's academic program. The student must apply to Department for an internship by submitting a proposal which specifies the type of work/research experience preferred and how the internship will complement his or her academic program. The Department will attempt to place the selected students in cooperating community organizations to complete specified research or work-related tasks which are based on a contractual arrangement between the student and community organization. The student can receive three to six hours credit depending on the nature and extent of the internship assignment.

(450) **GGY 4800. Individual Study in Geography. (1-4)(1-4G)** Permission of Department must be obtained and credit hours established in advance. May be repeated for credit. Tutorial study or special research problems.

Courses for Graduate Students Only

(601) **GGY 6000. Topics in Economic Geography. (3G)** Major topics in the location of economic activity. May be repeated for credit as topics vary.

(602) **GGY 6005. Topics in Urban Geography. (3G)** Major topics in the form and structure of urban areas examined generally and in a specific local occurrence. May be repeated for credit as topics vary.

(603) **GGY 6010. Topics in Political Geography. (3G)** Major topics in the spatial aspects of political systems with special emphasis on urban and regional spatial patterns examined generally and in a specific local occurrence. May be repeated for credit as topics vary.

(604) **GGY 6015. Topics in Regional Geography. (3G)** Intensive examination of major spatial questions in a given region. May be repeated for credit as topics vary.

(605) **GGY 6020. Topics in Environmental Studies. (3G)** Major topics concerning the physical environment with emphasis on pollution problems in urban areas examined generally and in a specific local occurrence. May be repeated for credit as topics vary.

(606) **GGY 6025. Topics in Physical Geography. (3G)** Major topics in physical geography examined generally and in a specific local occurrence. May be repeated for credit as topics vary.

(615) **GGY 6100. Quantitative Analysis in Geography. (3G)** Multiple refression, trend surface, tactorial analysis, cluster analysis, discriminant analysis.

(616) **GGY 6110. Cartographic Preparation and Analysis. (3G)** Cartographic design and analysis of qualitative and quantitative data. Emphasis on preparation of maps, figures and charts. Techniques include scribing and various photographic processes. Two three-hour labs each week.

(617) **GGY 6200. Research Design Fundamentals. (3G)** Scientific research and problem solving. Problem identification, bibliographic search, data sources and collection, techniques selection and preparation of reports and proposals.

(618) **GGY 6201. Analysis and Presentation of Research Data. (3G)** The student is required to complete a research project. Topics such as research critiques, preparation and presentation of research reports, and the development of geographic thought are considered.

(650) **GGY 6600. Seminar in Geography. (3G)** Study of the current trends in geographic thought and research methods. *Pass/No Credit* grading.

(651) **GGY 6030. Topics in Geographic Techniques. (3G)** Cartographic, remote sensing, quantitative techniques or field techniques. May be repeated for credit as topics vary.

(680) **GGY 6800. Directed Problems in Geography. (3G)** Individual research into geographic topics. May be repeated one time.

(690-691) **GGY 7900-7901. Individual Research Project. (3G-3G)** Individual research report based on directed study of a topic of geographic significance. *Pass/No Credit* grading.

EARTH SCIENCES

Courses for Undergraduates

(101) **ES 1101. Earth Science-Geography. (4)** Basic geographical principles and processes in earth science: the grid system, weather, climate, the waters, soils and vegetation. Three lecture hours and one period in the audio-visuals tutorial lab every week.

(102) **ES 1102. Earth Science-Geology. (4)** Basic geological principles and processes in earth science; the earth as a planet; treatment of physical processes shaping the earth; earth materials and landforms. Three lecture hours and one laboratory period of two hours a week.

(300) **ES 2100. The Violent Earth. (3) (3G)** Volcanoes, earthquakes, hurricanes, tornadoes, floods and other catastrophic natural phenomena with emphasis on causes, effects and human adjustments.

(301) **ES 2101. The Environmental Dilemma. (3) (3G)** Nature, causes and responses to major environmental problems.

(203) **ES 2200. Introduction to Earth Sciences Research. (3)** Pre- or corequisite: ES 1101, ES 1102. Basic techniques common to research in all of the earth sciences. Research design and organization, utilization of literature resources and the use of quantitative methods.

(340) **ES 2210. Field Methods in the Earth Sciences. (4)** Prerequisites: ES 1101, 1102 and ENG 2014 or consent of instructor. Field techniques used in studies of geology, topography, hydrology, soil, miroclimate and vegetation. Writing skills related to the presentation of scientific data emphasized. Three hours of lecture, two hours of lab per week. Earth Science majors should take ES 2210 as soon as possible after completion of ES 1101 and 1102.

(306) **ES 3000. Selected Topics in Earth Sciences. (1-4)** Prerequisite: ES 1101 or 1102 and consent of instructor. In-depth treatment of specific topics selected from one of the fields of the earth sciences. Topics will vary from semester to semester. May be repeated for credit as topics vary.

(302) **ES 3100. Earth History (4) (4G)** Prerequisite: ES 1102. The origin and evolution of the earth's major features: the beginnings and changes of the earth's continents, atmosphere, oceans, life forms, set in the vast context of geologic time. Three hours of lecture, two hours of lab per week.

(303) **ES 3110. Minerals and Rocks. (3)** Pre- or corequisite: ES 1102. Formation processes, composition and identification of rocks and minerals in the earth's crust with important abundance or special use.

(351) **ES 3115. Mineralogy. (4)** Prerequisite: ES 1102. Pre- or corequieiste: CHE 1001 or consent of the instructor. Identification, classification and description of minerals based on physical properties, crystallography, and chemical composition. Includes diagnostic techniques for identification of common ore and rock forming minerals. Three hours of lecture and one three-hour lab per week.

(385) **ES 3120. Environmental Geography. (4)** Prerequisite: ES 1102, and CHE 1101, or consent of the instructor. Geochemical survey of origin, evolution and present composition of the earty.

(310) **GGY 3125. Stratigraphy. (4)** Prerequisite: ES 3100. Vertical and horitontal relationships of layered earth materials as a key to the understanding of past depositional environments and their transformation through time. Three hours of lecture and three hours of lab per week.

(360) **ES 3130. Structural Geography. (4)** Prerequisites: ES 1102, 3115 or consent of the instructor. Processes of the folding and fracturing of rock. The identification, description and relationship of these and other geologic problems based on field data. Three hours of lecture, one three-hour lab per week.

(341) **ES 3150. Natural Envioronments of North America. (3)** Prerequisites: ES 1101 or 1102. Regional geomorphology and ecology of North America with emphasis on development, maintenance, and interaction of the geomorphic and ecological provinces in North America.

(371) **ES 3170. Environmental Quality Management. (3)** Design and implementation of air and water resource management plans.

(372) **ES 3180. Environmental Impact Analysis. (3)(3G)** Prerequisite: junior-senior standing. Environmental impact requirements and associated procedures, guidelines and methods of assessing physical environmental impacts. Three hours per week of combined lecture and supervised field work leading to the preparation of an environmental impact statement for a locally proposed action.

(356) **ES 3190. Environmental Geology. (3)** Prerequisite: ES 1102. Aspects of geology which have direct or indirect impact on society. Topics include slope stability, earthquake hazards, solid waste disposal, flooding, ground water problems, soil loss, sediment pollution, watershed dynamics, water and soil pollution, and radioactive waste disposal.

(304) **ES 3200. Oceanography. (3)** Oceanography with emphasis on physical, chemical and geological aspects of the world oceans. Oceanic circulation, seawater composition and chemistry and marine sedimentation and geology.

(335) **ES 3210. Soil Science. (3)** Prerequisite: ES 1102. Corequisite: CHE 1101 or consent of the instructor. Presentation and application of knowledge of soils forming processes to the management and use of soils. Two hours of lecture, three hours of lab per week with occasional field trips.

(367) **ES 3220. Hydrologic Processes. (4)** Prerequisite: ES 1101 or 1102. Atmospheric, soils and geologic aspects of surface and ground water processes. Three lecture hours and one twol-hour lab per week.

(342) **ES 3230. Meteorology. (3)** Atmospheric phenomena, weather producing processes, weather forecasting and weater effects upon man's activities.

(343) **ES 3231. Weather Analysis Laboratory. (1)** Pre- or corequisite: ES 3230 or consent of instructor. Weather observation and techniques of weather forecasting. One two-hour lab per week.

Courses for Advanced Undergraduates and Graduate Students

(352) **ES 4100. Petrology. (4)(4G)** Prerequisite ES 3115. Classification, mineraology and chemical properties of igneous and metamorphic rocks including the tectonic processes by which they formed. Lab emphasizes hand specimen and petrographic description and interpretation of igneous and metamorphic rocks in thin sections.

(353) **ES 4105. Sedimentary Petrology. (4)(4G)** Prerequisite: ES 3115 or consent of instructor. Examination of sedimentary rock features and compositions as related to origin, dispersion, deposition, diagenesis, classification and general distribution of sedimentary materials; principles of physical stratigraphy and biostratigraphy. Three hours of lecture and one three-hour lab per week.

(410) **ES 4115. Applied Geophysics. (4)(4G)** Prerequisites: ES 3115, 3125, 3130 and introductory physics or consent of instructor. Instrumental analysis of the earth's physical parameters. Study of man-induced seismic and electrical signals, and natural magnetic and gravitational fields for the purposes of locating faults, ore bodies, ground water and other earth hazards or resources. Three hours of lecture and one two-hour lab per week.

(355) **ES 4120. Geologic Mapping and Interpretation. (4)(4G)** Prerequisites: ES 4100 and 3130 or consent of instructor. Field and lab oriented study using principles of mineralogy, petrology and structural geology. Involves collection and resolution of field data, techniques of presenting data, development of geologic maps, and critical reviews of existing literature. Two hours of lecture, four hours of lab/field work per wek.

(470) **ES 4125. Geologic Summer Field Camp. (6)(6G)** Prerequisite: junio standing and consent of instructor. Concentrated field investigation of geologic features. Data collection in the field, geologic mapping, report and map preparation and time management. Location of field camp will be specified each time course is offered. Extra course work required for graduate credit.

(375) **ES 4130. Optical Mineralogy. (4) (4G)** Prerequisite: ES 3115. Light optics theory, the behavior of plane polarized light in a solid medium. The laboratory emphasizes the use of petrographic microscope oil immersion techniques and identification of the common rock forming minerals. Three hours of lecture and one three hour lab per week.

(425) **ES 4135. Tectonics. (4) (4G)** Prerequisite: ES 1102, ES 3130, or consent of the instructor. A systematic examination of the evolution and dynamics of the Earth from the perspective of plate tectonics theory. Three hours of lecture and one three-hour lab per week.

(348) **ES 4150. Applied Climatology. (3) (3G)** Prerequisite: ES 2200 or Statistics, ES 3230 or consent of instructor. Methods of acquiring and analyzing climatic data in various types of applied problems. Emphasis on methods to assess and reduce the economic impacts of weather effects upon man's activities.

(362) **ES 4155. Fluvial Processes. (4)(4G)** Prerequisite: ES 3220. A hydrologic and geomorphic study of the transport of water and earth materials within stream systems. Erosion, mass wasting, open channel flow, sediment transport, flooding, stream channel morphology, morphometry of drainage basins, and related topics. Three hours of lecture, two hours of lab per week.

(480) **ES 4400. Internship in Earth Sciences. (3-6)(3-6G)** Prerequisite: consent of the Department. Research and/or work experience designed to be a logical extension of a student's academic program. The student must apply to Department for an internship by submitting a proposal which specifies the type of work/research experience preferred and how the internship will complement his or her academic program. The Department will attempt to place the selected students in cooperating community organizations to complete specified research or work-related tasks which are based on a contractual arrangement between the student and community organization. The student can receive three to six hours credit, depending on the nature and extent of the internship assignment.

(460) **ES 4800. Individual Study in Earth Sciences. (1-4)(1-4G)** Permission of the Department must be obtained and credit hours established in advance. Tutorial study or special research problems. May be repeated for credit as topics vary.

Courses for Graduate Students Only

(660) **ES 6060. Earth Sciences Field Investigations. (1-6G)** Prerequisite: consent of instructor. A concentrated field investigation of selected earth sciences topics. Course subject matter, credit hours, location and duration will be specified each time course is offered. May be repeated for credit. *Pass/No Credit* grading.

(650) **ES 6650. Workshop in Geography. (4G)** a. Earth Science I. A series of lectures on the subject matter of the atmosphere and hydrosphere with accompanying laboratory sessions.

(651) **ES 6651. Workshops in Geology. (4G)** a. Earth Science II. A series of lectures on subject matter of the lithosphere and space science with accompanying laboratory sessions.

Department of History

Chairperson: Professor Perzel
Professors: Escott, Josephson, Morrill, Patterson, Rieke
Robert Lee Bailey Professor: Goldfield
Associate Professors: Blackwelder, Haber, Johnson, Laurent
Associate Professor Emeritus: R. Blackwelder
Assistant Professors: Brown, Gordon, Livingston

B.A. IN HISTORY

A major in History leading to the B.A. degree, except for students in a teacher certificate program, consists of 36 hours of history including HIS 1120, three additional hours in European history either at the 1000 or 3000 level and at least six hours in two of the following areas: Asian History, African History or Latin American History. These two courses may be at either the 1000 or 3000 level. Three semester hours must be taken at the 4000 level. Without the special permission of the chairperson of the Department, no more than 15 hours may be at the 1000 level and carry credit for the major. Related work consists of 15 hours of approved work in a discipline other than history, including the option of 15 hours of related work in a multi-disciplinary area, such as International Studies, Black Studies, Women's Studies and American Studies.

A major in history leading to the B.A. degree and secondary teacher certification consists of 30 hours of history including HIS 1120, three additional hours in European history either at the 1000 or 3000 level and at least six hours in two of the following areas: Asian History, African History or Latin American History. These two courses may be at either the 1000 or 3000 level. Three semester hours must be taken at the 4000 level. Students seeking certification must take at least three semester hours of American history. Without the special permission of the chairperson of the Department, no more than 15 hours may be at the 1000 level and carry credit for the major. Related work consists of either 15 hours of approved work in one discipline or 21 hours evenly distributed among three of the social sciences (anthropology, economics, geography, political science and sociology) which will qualify the student for certification in social studies. In addition the candidate for secondary certification must fulfill the requirements of the North Carolina Department of Public Instruction.

A major in history leading to the B.A. degree and an intermediate teaching certificate consists of 24 hours in history including HIS 1120, three additional hours in European history either at the 1000 or 3000 level and at least six hours in two of the following areas: Asian History, African History or Latin American History. These two courses may be at either the 1000 or 3000 level. Students seeking certification must take at least three semester hours of American History. Related work must be approved and consistent with the state guidelines for intermediate certification.

Curricula for teacher certification candidates must be in accordance with the curriculum of the College of Education and Allied Professions.

MINOR IN HISTORY

A minor in History consists of 18 semester hours including HIS 1121; no more than six additional hours at the 1000 level; and at least nine semester hours selected from 3000 or 4000 level courses. The student must achieve a minimum grade point average of 2.0 in all history courses.

The Honors Program in History. The Department of History offers an honors program as well as individual honors courses. Both history majors and non-majors are welcome to participate. A brochure fully outlining the honors program is available in the History office. Study abroad in Asia, Africa, Europe, Latin America or Canada can be arranged.

MASTER OF ARTS IN HISTORY

The program for the Master of Arts degree in History is designed to assist individuals in developing the methodological, literary and conceptual skills of the professional historian. Graduates of the program will be able to employ this expertise in a variety of ways, as students in a doctoral program, as professionally oriented history teachers in the secondary schools or as citizens more acutely aware of the historical development of their society.

The Department of History offers graduate programs with a concentration either in Social History or Political Change and Conflict. Students may select a variety of graduate courses from African, Asian, Latin American, European and American history that relate to the two topics.

Degree Requirements. The Master of Arts in History requires the completion of a minimum of 30 hours of graduate work with a 3.0 grade point average in all courses taken for graduate credit and with a maximum of two *Cs* permitted for continuation in the program.

Candidates must complete:

a) A minimum of 30 hours of approved graduate credit.
b) A minimum of 24 hours of work in history courses approved for graduate work.
c) Of the 24 hours, no more than six may be taken in individually designed reading or research courses.
d) At least 15 of the 24 hours must be taken in seminars, or colloquia, open only to graduate students.
e) All students must complete HIS 6693; Historiography and Methodology with a grade of *B* or better.

Students may elect six hours of graduate work in another field. Candidates seeking Graduate Education Certification may exercise their elective option by undertaking graduate course work in the College of Education and Allied Professions. Students seeking Graduate Education Certification should solicit the advice of the College of Education and Allied Professions as to appropriate professional education courses. Should the College of Education and Allied Professions require more than six hours for Graduate Education Certification, the additional hours will be added to the total ordinarily completed for the Master of Arts in History.

Candidates must successfully complete a comprehensive written examination in their area of concentration. This examination will be given at or near the completion of course work. A thesis may be substituted for the written examination.

Candidates must successfully complete a final oral examination, which will include a defense of a formal thesis or a seminar paper selected by the student as illustrative of the student's historical research and writing. All requirements must be completed within six calendar years of the date of original enrollment in the program.

Students are not required to demonstrate through examination knowledge of a foreign language; however, the Department of History assumes that a candidate will be able to use whatever languages are required by the candidate's research interests.

All students in the program are expected to maintain a *B* average in all courses taken. Students whose averages fall below that level will be subject to suspension on recommendation of the Graduate Committee of the Department of History.

Administration. The admission of students and approval of each student's program shall be the responsibility of the Graduate Committee of the Department of History.

The planning and monitoring of each student's program shall be the function of the Graduate Coordinator. The Graduate Coordinator shall advise and assist the student in selecting an Examining Committee.

The Examining Committee shall conduct the student's comprehensive written and final oral examinations. The Examining Committee shall consist of two faculty members from the Department of History, and a third member selected from History or another department.

At least 24 hours of graduate work must be taken in residence. No more than 12 hours credit, six of which may count toward residence, may be accepted for transfer from other campuses of the University of North Carolina. A maximum of six hours may be accepted from other accredited universities.

COURSE DESCRIPTIONS

Courses Primarily for Lower Division Undergraduates

(100) **HIS 1000. The World Since 1945. (3)** Outstanding recent world developments in an historical context.

(120) **HIS 1120. European History to 1660. (3)** Political and cultural developments of Western Europe the fourth century A.D. to the Age of Absolutism.

(121) **HIS 1121. European History Since 1660. (3)** European history from the Age of Absolutism to the present.

(122) **HIS 1130. Introduction to Asian History. (3)** Asian history from early times to the present.

(123) **HIS 1140. Introduction to Latin American History. (3)** Cultural, political and economic developments in Latin America.

(124) **HIS 1150. Introduction to African History. (3)** Cultural, economic and political developments in Sub-Saharan Africa.

(125) **HIS 1160. U.S. History I. (3)** American history from the earliest times to 1865.

(126) **HIS 1161. U.S. History II. (3)** American history from 1865 to the present.

(130) **HIS 1200. History—Film. (3)** Treatment of a historical topic, problem or theme. Students may receive credit toward graduation for more than one course under this rubric. History majors may receive credit toward the fulfillment of the hours for a major from only one course under this rubric.

(250) **HIS 2000. Topics in History. (3)** Treatment of an historical topic. May be repeated for credit as topics vary.

(245) **HIS 2101. American Business History. (3)** A survey of the origins, methods, and goals of modern business enterprise. Lectures emphasize the social history of the American business community and the relation between public policy and economic growth. Discussion emphasizes current economic problems and policies.

(250) **HIS 2700. Honors in History.** (3) Prerequisite: consent of instructor. Treatment of an historical topic. May be repeated for credit as topics vary.

Courses for Advanced Undergraduates

(350) **HIS 3000. Topics in History.** (3) Treatment of an historical topic. May be repeated for credit as topics vary.

(303) **HIS 3101. History of Greece. (3)** From the beginning of civilization in Greece to 332 B.C.

(304) **HIS 3102. History of Rome. (3)** From the beginning of civilization in Italy to 284 A.D.

(301) **HIS 3105. Early Middle Ages, 300 A.D.-1100 A.D.** (3) Europe from the decline of the Roman Empire to the 12th century; spread of Christianity, the Frankish Monarchy, and the Crusades.

(302) **HIS 3106. The High and Later Middle Ages, 1000 A.D.-1400 A.D.** (3) The revival of towns, growth of centralized monarchies, and the Black Death and its consequences.

(307) **HIS 3107. Renaissance Europe. (3)** Social, economic and political consequences of the Cultural awakening in Italy.

(308) **HIS 3108. Reformation Europe 1400-1650. (3)** The Protestant Reformation and its impact on Western Europe.

(306) **HIS 3110. The European World in the Era of the French Revolution. (3)** The role of the Enlightenment, the French Revolution and Napoleon in the destruction of the Old Regime and the creation of modern political and social traditions.

(309) **HIS 3115. Nineteenth Century Europe, 1814-1914. (3)** Political developments in European history from the Congress of Vienna: liberalism, nationalism, imperialism and the diplomacy leading to World War I.

(310) **HIS 3116. Twentieth Century Europe, 1914 to the Present. (3)** Causes and results of World War I, rise of new governments, collapse of collective security, World War II and the postwar period.

(311) **HIS 3121. Russian History from Earliest Times to 1801. (3)** Development of the Russian people, focusing upon the rise and fall of the Kievan state, the impact of the period of Tartar domination, the rise of Moscovy, and the growth of the Tsarist autocracy before the reign of Alexander I.

(312) **HIS 3122. Russian History from 1801 to 1917. (3)** Decline and fall of the Tsarist empire, focusing upon the efforts of the last four rulers to perpetuate the monarchy and upon the factors working against the effort.

(313) **HIS 3123. Russian History from 1917 to the Present. (3)** Development of Soviet Russia, focusing upon the October 1917 Revolution, Lenin's years of rule, Stalin's rise to power, the Five Year Plan and the years since World War II.

(367) **HIS 3127. France, 1815 to the Present. (3)** A study of France through the period of the Paris Commune, the two World Wars, and the current crisis of the modern world.

(314) **HIS 3130. History of Socialism and Communism. (3)** Socialism before the establishment of the First International, followed by analysis of the socialist and communist movements until the present.

(316) **HIS 3134. European Intellectual History Since 1789. (3)** Leading thinkers in the development of philosophic, scientific and political thought.

(361) **HIS 3135. Britain to 1688. (3)** British history with emphasis on institutional, cultural, economic and imperial developments.

(362) **HIS 3136. Britain since 1688. (3)** Continuation of HIS 3135 with some treatment of the British Empire.

(365) **HIS 3137. Britain: 1945 to the Present. (3)** Social and intellectual trends that have shpaed British society since 1945. Topics include art, music and literature; social movements, nationalization and the growth of the welfare state.

(320) **HIS 3141. World War I. (3)** World War I from the outbreak of hostilities to the peace settlement. Impact on the combatant nations and subsequent development of the World.

(315) **HIS 3142. A Military History of World War II. (3)** Major campaigns of World War II with emphasis upon the European theater of operations.

(317) **HIS 3143. World War II: The Pacific Theater. (3)** A description and analytical survey of the military campaigns in the Pacific theater of operations.

(368) **HIS 3145. The Emergence of Modern Germany. (3)** A political survey to the mid-19th century, emphasizing the dual role of Prussia and Austria in the German world.

(369) **HIS 3146. Twentieth Century Germany. (3)** The Wilhelmine Empire, the Wiemar Republic, the Third Reich and the two Germanies.

(370) **HIS 3147. The Third Reich. (3)** The origins of Nazism, the seizure of power, Hitler's domestic and foreign policy, and the collapse in World War II.

(332) **HIS 3151. South Africa. (3)** Population groups of South Africa from earliest times to the present. Emphasis on the assertion and maintenance of European rule in the 19th and 20th centuries.

(334) **HIS 3152. Modern African History. (3)** Major developments in Sub-Saharan Africa from the 19th century to the present, with stress on the commercial and religious revolutions of the 19th century, the impact of colonial rule and the triumph of modern African nationalism.

(336) **HIS 3161. China in Revolution. (3)** The last 200 years of history with emphasis on the history of the Chinese Revolution and the post-1949 developments.

(337) **HIS 3165. History of Modern Japan. (3)** Japan from about 1600 to the present covering Japan's intellectual, social and economic transformation from an agricultural society to an industrial power.

(338) **HIS 3169. The West in Asia: Imperialism, Colonialism and Modern Nationalism. (3)** Western expansion in Asia beginning with the East India companies with concentration on modern imperialism in the 19th and 20th centuries.

(340) **HIS 3171. History of Argentina. (3)** Argentine history from the late colonial period to the present. Emphasis on changes in Argentine economic and social structures and their relation to political developments.

(346) **HIS 3176. History of Mexico. (3)** A survey of Mexican history from pre-Columbian times to the present. Special emphasis will be given to the Spanish conquest, the colonial economy, the independence period, the revolution, and relations with the United States.

(347) **HIS 3177. The Cuban Revolution. (3)** An examination of the economic and political forces that led to the Cuban revolution. Significant background material from the 19th and early 20th centuries will be presented in addition to an analysis of the revolution and post-revolutionary events.

(343) **HIS 3179. The United States and Latin America. (3)** Relations between the United States and Latin America. Growth of U.S. economic and political interest in Latin America and the impact of U.S. influence in that region.

(349) **HIS 3181. Introduction to Historic Preservation. (3)** Techniques available in the United States to identify and preserve historically significant structures, buildings, sites, areas and objects.

(329) **HIS 3184. Disease and Medicine in History. (3)** Development of medical knowledge, trends in the techniques and availability of medical and psychiatric care, and the impact of disease and medicine on selected problems in world history.

(330) **HIS 3185. American Medical History. (3)** History of American medicine and the relationship between medical thought and changing cultural beliefs.

(371) **HIS 3201. Colonial America. (3)** Colonial history from the discoveries to 1763.

(372) **HIS 3202. The American Revolution and Early Nation. (3)** The achievement of independence and the formation of a national government, 1763-1800.

(375) **HIS 3211. Civil War and Reconstruction, 1860-1877. (3)** The American people in war and the postwar adjustment. Emphasis on the political, social and economic conditions of the North and South during the Civil War and Reconstruction period.

(379) **HIS 3212. History of the South to 1865. (3)** The South from colonial origins through the Civil War. Emphasis on the political and cultural developments which ultimately led the South to secession and the creation of a distinct Southern nation in the confederacy.

(380) **HIS 3213. History of the South since 1865. (3)** Southern history from Reconstruction to the present. Emphasis on race and class relations as the South copes with change. Special attention to the Civil Rights Movement, industrialization and urbanization.

(385) **HIS 3214. The Urban South. (3)** Development of the Southern city from the colonial period to the present with emphasis on the agricultural base of urban life, the biracial character, and early economic dependence upon the North.

(387) **HIS 3241. United States Social History to 1860. (3)** Ideas, groups and institutions that shaped early America, with emphasis upon the changes in family, religion, community and class

(388) **HIS 3242. United States Social History since 1860. (3)** Ideas, groups and institutions that evolved from the Civil War to the present, with emphasis upon the formation of modern-day American society.

(377) **HIS 3251. United States in the 20th Century, 1901-1932. (3)** Political, economic, social and intellectual aspects of American democracy from 1901 to the Great Depression. Special emphasis on the impact of industrialization, American reform and the entry of the United States into the international arena.

(378) **HIS 3252. United States in the 20th Century, 1932-Present. (3)** Political, economic, social and intellectual aspects of American democracy from the New Deal to the Great Society. Special emphasis on the New Deal and post-New Deal reform as well as America's role in world affairs.

(386) **HIS 3256. United States Foreign Relations, 1901-Present. (3)** American diplomatic history from the administration of Theodore Roosevelt to the present. Special emphasis on the interaction between domestic, economic, political and social changes and the formulation of American foreign policy.

(381) **HIS 3259. Radicalism and Reform in the U.S. (3)** Radical and reform efforts from the Revolutionary War to the present. Emphasis on the development of the radical and reform traditions and their interaction through two centuries of American history.

(382) **HIS 3261. The Civil Rights Era. (3)** Examination of the struggle for racial equality, particularly in the South, from World War II through the 1960's emphasizing the nature and tactics of black leadership, white resistance, federal involvement, results, and the unfinished agenda.

(383) **HIS 3281. American Cities. (3)** U.S. urban history. The city as a physical place, as a socio-political environment and as a cultural center. Emphasis on the social developments caused by urbanization.

(384) **HIS 3284. Crime and the Police. (3)** Historical development of criminal behavior, criminal law, the criminal courts, the police and the penitentiary system.

(393) **HIS 3288. The Frontier in United States History. (3)** Influence of the frontier on the historical development of the United States. Emphasis on the trans-Mississippi Western United States.

(389) **HIS 3290. History of Women in the U.S. (3)** Changing experience, status and role of women from colonial times to the present.

(391) **HIS 3295. History of North Carolina to 1865. (3)** Emphasis on the colonial and on the constitutional, educational and economic developments of the antebellum period.

(392) **HIS 3296. History of North Carolina Since 1865. (3)** Social, political and economic changes that have made modern North Carolina.

(350) **HIS 3700. Honors in History. (3)** Prerequisite: consent of instructor. Treatment of an historical topic. May be repeated for credit as topics vary.

(450) **HIS 3799. Senior Honors Thesis. (3)** Prerequisite: consent of the instructor. The preparation and presentation of an acceptable honors thesis or its equivalent.

(351) **HIS 3800. Independent Projects in History. (3)** Prerequisite: consent of instructor. Individual research or readings on an historical topic. May be repeated for credit with consent of the coordinator or instructor.

Courses for Advanced Undergraduates and Graduate Students

(411) **HIS 4000. Problems in History. (3) (3G)** A colloquium designed around a problem in history, utilizing reading, discussion, reports and short papers. Topics vary within the fields of American, European, Latin American, African and Asian history. May be repeated for credit as topics vary.

(491) **HIS 4401. History Internship. (1-3) (1-3G)** Applied historical techniques utilizing modern methodology and experiences in off-campus institutions or on historical sites. May be repeated for credit.

(492) **HIS 4600. Seminar in History. (3) (3G)** Prerequisite: consent of the Department. An intensive examination of a subject in history. May be repeated for credit.

(416) **HIS 4610. Recent United States Radicalism. (3)(3G)** Radical thought and action in the United States since 1890. Emphasis on Marxian-Socialism, Black and labor radicalism, radical women and the new Left movement.

(490) **HIS 4620. The Nature of Historical Study. (3) (3G)** The historian, his resuppositions, methods, objectives and their impact on the development of historical literature.

Courses for Graduate Students Only

(650) **HIS 6000. Topics in History. (3G)** Intensive treatment of a period or broader survey of a topic, depending on student needs and staff resources. May be repeated for credit as topics vary.

(696) **HIS 6601. Graduate Colloquium. (3G)** A colloquium focused on a theme or period. Assigned readings, short papers and reports directed toward developing research and writing skills. May be repeated for credit.

(693) **HIS 6693. Historiography and Methodology. (3G)** This historian and his philosophical and methodological approach. Required of all M.A. candidates.

(694) **HIS 6894. Readings in History. (3G)** Prerequisite: prior written consent of instructor. Coverage of historical periods or topics through individually designed reading programs; scheduled conference with a staff member. May be repeated for credit.

(601) **HIS 6901. Directed Readings/Research. (3G)** Prerequisite: prior written consent of instructor and graduate coordinator. Graduate students will meet individually or in small groups with the instructor and will be assigned readings and/or research on a theme which relates to the lectures of an undergraduate class. Attendance at the lectures is a course requirement. May be repeated for credit.

(697) **HIS 6997. Directed Research. (3G)** Prerequisite: prior written consent of instructor. Investigation of a historical problem culminating in a research paper. May be repeated for credit.

(699) **HIS 6999. Thesis. (3G or 6G)** May be repeated by permission, if taken for three hours credit. Six hours of Thesis may be taken during a single semester. Appropriate research and written exposition of that research is required.

Interdisciplinary Honors Program

Coordinator: Associate Professor Park

The Interdisciplinary Honors Program was established to provide exceptional academic and interpersonal experiences for UNCC's most talented students. The honors program provides a unique social and intellectual milieu for both students and faculty. It has a rigorous but flexible academic framework which permits UNCC's honors students to develop their intellectual and creative faculties to their fullest extent.

The Interdisciplinary Honors Program is open to students from all colleges and academic majors. Participation in the program may be student-initiated or a student may be invited to participate by the Interdisciplinary Honors Committee.

Students may take courses in the program without completing it. Students who complete the requirements to graduate with Interdisciplinary Honors will have this honor inscribed on their diploma, announced at graduation and permanently recorded on their transcript. In order to graduate with Interdisciplinary Honors, students must fulfill three major requirements. First, a student must complete 15 hours of honors course work across a minimum of three disciplines. At least three credits of these 15 hours must consist of Arts and Sciences honors course work, excluding the thesis. A single program of study might include six hours of Arts and Sciences honors credit through the Interdisciplinary Seminars, and three credits each in honors courses in English, Psychology and Mathematics. Other departments which presently offer honors courses open to nonmajors include Political Science and Sociology. Second, a student must complete a thesis approved by the Interdisciplinary Honors Committee. The thesis must result from enrollment in at least three hours of independent honors research. The thesis may be in any academic area and be directed by any faculty member at UNCC. Finally, students must have an overall GPA of 3.00 and a 3.50 GPA in honors work for which a letter grade was assigned. At least three credits of thesis work must be completed with the grade of "A".

COURSE DESCRIPTIONS

(101H) **A&S 1701. Interdisciplinary Honors Seminar: Humanities. (3)** Prerequisite: consent of the Interdisciplinary Honors Committee. A small, discussion-oriented class team taught fall semester by faculty members from different disciplines including a humanities discipline. Readings and other activities assigned in accordance with the theme selected for the course by the instructors. Fulfills three hours of humanities requirement.

(102H) **A&S 1702. Interdisciplinary Honors Seminar: Social Sciences. (3)** Prerequisite: consent of the Interdisciplinary Honors Committee. A small discussion-oriented class team taught spring semester by faculty members from different disciplines, including a social science discipline. Readings and activities assigned in accordance with theme selected by the instructors. Fulfills three credits of the social science requirement.

(350H) **A&S 3700. Interdisciplinary Honors Topics. (3)** Prerequisites: junior standing and consent of the Interdisciplinary Honors Committee. Selected interdisciplinary topics either team or individually taught at the honors level with at least one faculty member from an Arts and Sciences discipline.

(400H) **A&S 3750. Interdisciplinary Honors Forum. (3)** Prerequisites: junior status and consent of the Interdisciplinary Honors Committee. Faculty members from different disciplines are invited by the course instructor to speak and lead discussions.

(490H) **A&S 3790. Interdisciplinary Honors Thesis. (1-4)** Prerequisites: Six hours honors course work and consent of thesis director and Interdisciplinary Honors Committee. Honors research project directed by a faculty member. May be repeated for credit.

Department of Mathematics

Chairperson: Professor Quinn
Professors: Abdel-Hameed, Goodrum, Lambert, Leiva, T.R. Lucas, Nixon, Solian, Weinstock
Associate Professors: Anderson, Burnap, Houston, Johnson, Papadopoulos, Reiter, Shafer, Stavrakas, Wichnoski
Assistant Professors: Attele, Avrin, Chen, Kazemi, Kumar, T.G. Lucas, Oh, Prichard, Roth, Royster, Stewart, Wright
Lecturers: Alexander, Ferrier, Hatley, Kohn, O'Neill, Orinson, Priebe, N. Royster, Schoeps, Twery

B.A. IN MATHEMATICS

A major in mathematics for the B.A. degree consists of a minimum of 33 hours of approved mathematics courses, including MAT 1141, 1142, 2141, 2163, 2164, and 2171; 12 hours of approved courses numbered 3000 or above; and MAT 3688 and 3689.

A major in mathematics is also required to complete: CSC 1100; an elective minor consisting of at least 18 hours of approved courses in an area outside the Mathematics Department; and the 2202 course in some foreign language, unless four high school units in the same foreign language are presented for admission.

B.S. IN MATHEMATICS

A major in mathematics for the B.S. degree consists of a minimum of 39 semester hours of approved mathematics courses. In addition to the requirements for the B.A. degree, a major in mathematics for the B.S. degree is required to complete six additional hours of approved mathematics courses numbered 3000 or above including MAT 3141, as well as three hours of science beyond that which is required by the UNCC general degree requirements.

Minor in Mathematics

A minor in Mathematics requires: (1) a minimum of five courses in mathematics numbered 1140 or above including MAT 1141, 1142, and 2164, at least one additional course numbered 2000 or above, and at least one course numbered 3000 or above; and (2) a minimum grade point average of 2.0 in all work in Mathematics in courses numbered 1140 or above.

QUALITY POINT REQUIREMENT

For both the B.A. and B.S. degrees a major in mathematics must have a quality point aveage of at least 2.00 in each of the following categories: (1) all courses applied towards the degree, (2) all mathematics courses numbered 1140 or above taken, and (3) all upper-division mathematics courses taken.

OTHER INFORMATION

Students preparing for certification to teach mathematics in secondary school (grades 9-12) will major in mathematics and should follow the suggested curriculum on page 154.

While excessive specialization at the undergraduate level is not encouraged, students may choose their upper-division mathematics electives so as to emphasize statistics, operations research, or applied mathematics. Students who complete the B.S. curriculum will be well prepared for graduate work in the mathematical sciences.

Prospective mathematics majors should take at least four years of high school mathematics, including at least one year beyond Algebra II. Only well-prepared students will be permitted to enroll in MAT 1141 without first taking MAT 1103.

THE HONORS PROGRAM IN MATHEMATICS

The overall purpose of this program is to stimulate the imagination of the student by encouraging independent study and by freeing him to a certain extent from the more structured program which leads to a B.A. or B.S. in Mathematics. The program in honors will be kept as flexible as possible to allow students with different interests and abilities to benefit from it.

Any student may request entrance into the honors program at any time. A student in any one of the honors courses shall receive a grade of *Pass Honors, Pass,* or *No Credit.* The minimum required to obtain Honors in mathematics is participation in two semesters of the Senior Honors Tutorial with a grade of *Pass Honors,* completion of a thesis and examination of the candidate by the Honors Committee of the Department of Mathematics upon his honors work.

(390H) **MAT 3790. Junior Honors Seminar. (3)** Prerequisite: consent of the Department. (May be repeated once for additional credith with approval of the Department.)

(490H) **MAT 3791. Senior Honors Tutorial. (3)** Prerequisite: consent of the Department. Individual tutorials in which the student will pursue independent study and research in any area of mathematics under the direction of one or more faculty members. The project of the student will be planned to culminate in a research paper of original or expository nature. (May be repeated for additional credit with the approval of the Department.)

MASTER OF ARTS DEGREE IN MATHEMATICS

The Master of Arts degree in Mathematics is designed both to provide advanced skills and knowledge for those seeking either positions in industry or in government, or teaching positions at the junior college or community college level, and to provide professional development to those currently in such positions. Graduates of the program will also be well prepared to enter directly into at least the second year of a Ph.D. program in mathematics, applied mathematics or statistics at other institutions, depending on the particular courses selected.

The Master of Arts degree in Mathematics requires successful completion of a minimum of 30 semester hours of graduate work approved by the Department Graduate Committee.

The Department groups the courses which may be applied toward the M.A. in Mathematics into five broad areas: Applied Mathematics, Probability-Statistics, Algebra-Topology, Analysis, and Computer Science. Each candidate must demonstrate, to the satisfaction of the Graduate Committee, competence on general knowledge in at least three of these areas. This may be accomplished by means of either (a) successful performance on a written comprehensive examination or (b) successful completion of courses in these areas.

Regularly offered courses which are available for graduate credit in the M.A. program are as follows:

Group I (Applied Mathematics) MAT 4165, 4176, 5172, 7147, 7171, 7176.

Group II (Probability-Statistics) MAT 4123, 4124, 5125, 7120, 7121.

Group III (Algebra-Topology) MAT 4163, 4164, 4181, 7163.

Group IV (Analysis) MAT 5143, 5144, 7141, 7143.

Group V (Computer Science) All 5000 and 6000-level Computer Science Courses

Each candidate must complete:

(a) MAT 5143 and MAT 5144 or their equivalents

(b) At least 15 hours in courses numbered above 7000. (With the approval of the Department Graduate Committee, at most one three-hour 6000-level Group V course of sufficient theoretical nature may be applied toward the 15 hours).

(c) At least one course from two of the groups I, II, III, V.

All candidates must perform satisfactorily on an oral comprehensive examination over the candidates program of study.

Completion of a satisfactory thesis is optional. With the approval of the Department Graduate Committee, a candidate may receive at most six of the 15 hours required at the 7000-level for the writing of a master's thesis. Subject to the approval by the Department Graduate Committee, this thesis may be either original work, work of an expository nature, or the mathematical formulation and solution of a particular industrial or business problem suggested by the career interests of the student. A candidate may not receive more than a total of six of the hours required at the 7000-level for course and thesis work in computer science. If the thesis option is elected, the candidate will be required to defend his/her thesis in an oral examination.

MASTER OF ARTS DEGREE IN MATHEMATICS EDUCATION

The Master of Arts degree in Mathematics Education is designed primarily for secondary school teachers interested in professional growth and graduate certification in mathematics. Emphasis in this program is given to developing depth and breadth in mathematics appropriate to the role of the teacher.

Each candidate must complete:

(a) 18 hours of mathematics courses approved for graduate credit. At least nine of these hours must be in courses numbered 6000 or above.

(b) Six hours of graduate courses approved for this program by the College of Education and Allied Professions. (EDU 6100 and EDU 6120 are recommended.)

(c) at least six additional hours of courses approved for graduate credit. These may be in mathematics, professional education or in a related area approved by the student's advisor.

Thirty semester hours of graduate credit or the equivalent are the minimum required for the degree and for graduate certification in mathematics. Of these, 15 hours must be in courses numbered 6000 or above. Programs of study beyond these 30 hours may be required to remove deficiencies in undergraduate programs or to develop areas of need, interest, or desired experience.

Approval of the program of each student and provision of advice regarding progress toward the degree are the responsibility of an advisor appointed at the time of admission by the Department of Mathematics.

Each student must pass a comprehensive examination, including an oral examination, on the overall work presented for the degree.

SUGGESTED CURRICULUM FOR THE B.A. OPTION IN MATHEMATICS

Freshman Year

Mathematics 1141	4	Mathematics 1142	4
English 1101	3	English 1102	3
Social Science	3	CSC 1100	4
Language (or Elective)	4(3)	Language (or Elective)	4(3)
	14 (13)		15 (14)

Sophomore Year

Mathematics 2141	3	Mathematics 2171	3
Mathematics 2163 (or 2164)	3	Mathematics 2164 (or 2163)	3
Humanities	3	Humanities	3
Laboratory Science	4	Laboratory Science	4
Minor	3	Minor	3
	16		16

Junior Year

Mathematics 3688	0	Mathematics 3xxx or 4xxx	3
Mathematics 3xxx or 4xxx	3	Minor	3
Minor	3	Electives	9
Social Science	3		
Electives	6		
	15		15

Senior Year

Mathematics 3689	1	Mathematics 3xxx or 4xxx	3
Mathematics 3xxx or 4xxx	3	Minor	3
Minor	3	Electives	6-8
Electives	10		
	17		12-14

SUGGESTED CURRICULUM FOR THE B.S. OPTION IN MATHEMATICS

Freshman Year

Mathematics 1141	4	Mathematics 1142	4
English 1101	3	English 1102	3
Social Science	3	CSC 1100	4
Language (or Elective)	4(3)	Language (or Elective)	4(3)
	14(13)		15(14)

Sophomore Year

Mathematics 2141	3	Mathematics 2171	3
Mathematics 2163 (or 2164)	3	Mathematics 2164 (or 2163)	3
Humanities	3	Humanities	3
Laboratory Science	4	Laboratory Science	4
Minor	3	Minor	3
	16		16

Junior Year

Mathematics 3141	3	Mathematics 3xxx or 4xxx	3
Mathematics 3688	0	Minor	3
Science	3-4	Electives	9
Minor	3		15
Social Science	3		
Elective	3		
	15-16		

Senior Year

Mathematics 3689	1	Mathematics 3xxx or 4xxx	6
Mathematics 3xxx or 4xxx	6	Minor	3
Minor	3	Electives	3-6
Electives	6		
	16		12-15

B.A. IN MATHEMATICS FOR SECONDARY SCHOOL TEACHING

Typical Program

Freshman Year

English 1101	3	English 1102	3
Mathematics 1141	4	Mathematics 1142	4
PSY 1101 (Social Science)	3	Computer Science 1100	4
Humanities	3	Humanities	3
Elective	3		
	16		14

Sophomore Year

Mathematics 2141	3	Mathematics 2171	3
EDU 2100	3	Foreign Language 2202	4
Foreign Language 2201	4	EDU 2110	3
PSY 2202 (Social Science)	3	Lab Science	4
Lab Science	4	Elective	3
	17		17

Junior Year

Mathematics 4109	3	Mathematics 3181	3
Mathematics 2164	3	Mathematics 2163	3
EDU 3120	3	Mathematics 5122	3
HED 2101 or PED 2290	3	EDU 3195	3
Elective	3	SED 3160	3
	15		15

Senior Year

Mathematics Education 5171	3	Internship Semester	
EDU 3196	3	EDU 3490	12
RDG 5250	3		
Mathematics Elective (3xxx or 4xxx)	3		
Elective	2		
	14		12

Total Credits 120

Note: Deviations from the above are possible. Examples of acceptable changes include an upper level topics in geometry course rather than MAT 3181, MAT 1220, 1221, or 1222 instead of MAT 5122 (with an upper level MAT course added to meet degree requirements), and competency in computer science other than through CSC 1100. Advisors or students who have questions about other possible alternatives should confer with the Department of Mathematics.

COURSE DESCRIPTIONS

MATHEMATICS

Courses for Undergraduates

(150) **MAT 1050. Introductory Topics in Mathematics. (1-3)** Prerequisite: consent of the Department. Topics in introductory mathematics not included in the regular course offering. (May be repeated for additional credit as topics vary and with the approval of the Department.)

(101) **MAT 1101. Finite Mathematics. (3)** Prerequisite: high school algebra II and geometry. Review of high school elementary matrix algebra; elementary matrix algebra; systems of linear equations and equalities; elementary linear programming; probability.

(103) **MAT 1103. Precalculus Mathematics. (3)** Prerequisite: Placement by Department of Mathematics. Functions and graphs, linear and quadratic functions, polynomial and rational functions, exponential and logarithmic functions, trigonometric identities.

(120) **MAT 1120. Calculus. (3)** Prerequisite: MAT 1101 or 1103. Elements of differential and integral calculus for polynomial, rational exponential and logarithmic functions, with applications to business and the social and life sciences. (May not be taken for credit if credit has been received for MAT 1141.)

Z(123) **MAT 1123. Elements of Statistics II. (3)** Prerequisite: MAT 1220 or 1221 or 1222. A second course in statistics including such topics as two sample tests, contingency analysis, design of experiements, and regression analysis.

(141) **MAT 1141. Differential and Integral Calculus I. (4)** Prerequisite: MAT 1103 with a grade of C or better or placement by Department of Mathematics. Limits, continuity, differentiation and integration of rational, trigonometric, exponential and logarithmic functions, curve sketching, maxima and minima area.

(142) **MAT 1142. Differential and Integral Calculus II. (4)** Prerequisite: MAT 141 with a grade of C or better. Applications of the integral, methods of integration; improper integrals, L'Hopital's rule, infinite series; conic sections; hyperbolic functions.

(103A) **MAT 1203. Concepts of Trigonometry. (1)** Prerequisite: Placement of the Department of Mathematics. Trigonometric functions and their graphs, trigonometric identities. (Credit not given for both Mathematics 1103 and 1203.)

(122A) **MAT 1220. Elements of Statistics I (BUS). (3)** Prerequisite: MAT 1101. Non-calculus based introduction to data summarization, binominal, Poisson and normal probability distributions, central limit theorem, estimation and testing for mean and variance using t, X^2 and F tables, simple linear regression, distribution free analysis. Special emphasis on applications to business.

(122B) **MAT 1221. Elements of Statistics I (BIO). (3)** Prerequisite: MAT 1101. The same topics as MAT 1220 with special emphasis on applications to the life sciences.

(122C) **MAT 1222. Elements of Statistics I (SBS) (3)** Prerequisite: MAT 1101. The same topics as MAT 1220 with special emphasis on applications to the social and behavioral sciences.

(250) **MAT 2050. Topics in Mathematics. (2-3)** Prerequisite: consent of the Department. Topics in mathematics elected to supplement regular offerings at the 2000-level. (May or may not count as a Math core course for the CSC major.) (May be repeated as additional credit as topics vary and with the approval of the Department.)

(211) **MAT 2111. Introduction to Operations Research. (3)** Prerequisite: MAT 1120 or 1141 and CSC 1100. Modeling and graph theory with applications to linear programming, critical path analysis, transportation and allocation problems, and queueing theory.

(221) **MAT 2121. Introduction to Probability. (3)** Prerequisite: MAT 1101 or 1103. Discrete sample spaces, probability, conditional probability, independent events, random variables, mean, variance, joint probability functions, independent random variables, covariance, correlation, binomial distribution.

(222) **MAT 2122. Introduction to Statistics. (3)** Prerequisite: MAT 1141 or consent of the Department. A study of probability models, discrete and continuous random variables, inference about Bernoulli probability, inference about population mean, inference about population variance, the maximum likelihood principle, the minimax principle, Bayes procedures and linear models.

(241) **MAT 2141. Differential and Integral Calculus III. (3)** Prerequisite: MAT 1142 with a grade of C or better. Polar coordinates, parametric equations, Vectors in two and three dimensions, quadric surfaces, partial derivatives, multiple integrals, line integrals.

(263) **MAT 2163. Introductory Modern Algebra. (3)** Prerequisite: MAT 1141 with a grade of C or better or consent of the Department. Elementary properties of group, rings, and fields. Many concrete examples of algebraic structures will be studied.

(264) **MAT 2164. Matrices and Linear Algebra. (3)** Prerequisite: MAT 1141 with a grade of C or better or consent of the Department. Matrix algebra, systems of inner equations, vector spaces, linear transformations, inner products, determinants.

(265) **MAT 2165. Discrete Structures. (3)** Prerequisite: MAT 2164. A study of discrete mathematical structures including groups, lattices, Boolean functions, graphs and trees with applications to computer science.

(271) **MAT 2171. Differential Equations. (3)** Prerequisite: MAT 1142 with a grade of C or better. An introduction to ordinary differential equations including first order equations, general theory of linear equations, series solutions, special solutions, special equations such as Bessel's equation, and applications to physical and geometric problems.

(450) **MAT 3050. Selected Topics in Mathematics. (2-3)** Prerequisite: consent of the Department. Topics selected to supplement regular offerings at the 3000-level in mathematics or statistics. May be repeated for credit with the approval of the Department.

(311) **MAT 3111. Operations Research: Deterministic Models. (3)** Prerequisites MAT 1142 and 2164. Linear, integer and dynamic programming, the simplex method and applications.

(313) **MAT 3113. Operations Research: Probabilistic Models. (3)** Prerequisites: MAT 1142 and 2121. Stochastic processes, Markov chains, queueing theory, decision analysis and applications.

(316) **MAT 3116. Graph Theory. (3)** Prerequisite: MAT 2164 or 2165 or consent of the Department. Paths, trees, connectivity, planarity, duality, colorability, enumerability and vector spaces of graphs. Applications to such areas as computer algorithms, switching and coding theory, transportation networks and Markov processes.

(322) **MAT 3122. Probability and Statistics I. (3)** Prerequisite: MAT 2141 with a grade of C or better. Sample spaces, random variables, moment generating functions, some standard distributions, multivariate distributions, laws of large numbers, limit theorems.

(323) **MAT 3123. Probability and Statistics II. (3)** Prerequisite: MAT 3122. Estimation, bias, consistency, efficiency, maximum likelihood estimates, sufficient statistics, testing, the power function, chi-square test, Kolmogorov-Smirnov test.

(341) **MAT 3141. Advanced Calculus of One Variable. (3)** Prerequisites: MAT 2141 and junior standing. Topology of the real line; continuity, uniform continuity, differentiability, integration, sequences and series of functions.

(342) **MAT 3142. Advanced Calculus of Several Variables. (3)** Prerequisites: MAT 2141 and MAT 2164. Continuity and differentiability of functions of several variables, inverse and implicit function theorems, integration, Fubini's theorem, change of variables, the classical integral theorems of Guass, Green and Stokes and their generalizaions.

(346) **MAT 3146. Introduction to Complex Analysis. (3)** Prerequisite: MAT 2141 with a grade of C or better. Analytic functions, complex integration, calculus of residues, conformal mapping.

(366) **MAT 3166. Combinatorial Mathematics. (3)** Prerequisite: MAT 2141. Permutations of distinct and non-distinct objects; generating functions for combinations, enumerators for permutations, recurrence relations, inclusion-exclusion principle, derangements, permutation groups, Polya's theory of counting.

(371) **MAT 3171. Applied Mathematics I. (3)** Prerequisites: MAT 2141 and 2171 with grades of C or better. Separation of variables techniques for the classical partial differential equations of mathematical physics; Fourier series; Sturm-Liouville theory.

(376) **MAT 3176. Numerical Analysis. (3)** Prerequisites: CSC 1100, MAT 2141 and 2171. Numerical solution of initial value and boundary value problems in ordinary differential equations, direct and iterative methods of solving systems of equations. Selected problems will be programmed for computer solution.

(381) **MAT 3181. Fundamental Concepts of Geometry. (3)** Prerequisites: MAT 2164. Foundations of geometry, transformations, comparison of Euclidean and non-Euclidean geometries.

(383) **MAT 3183. Intuitive Topology. (3)** Prerequisite: MAT 2141. Introduction to combinatorial topology; topology of Euclidean space, winding number, homotopy, fundamental group.

MAT 3688. Mathematics Awareness Seminar. (0) Prerequisite: junior standing. Visiting speakers, discussion of job opportunities and of selected topics in Mathematics.

MAT 3689. Mathematics Project Seminar. (1) Prerequisite: senior standing. Oral presentation by the student on an area of mathematics or a mathematical problem.

(391) **MAT 3691. Seminar. (1-6)** Prerequisite: consent of the Department. Readings, study and discussion designed to develop the student's ability to study independently and to present results properly.

Courses for Advanced Undergraduates and Graduate Students

(300) **MAT 4000. Topics in Foundation or History of Mathematics. (2-3) (2-3G)** Prerequisite: consent of the Department. Topics in the foundations or the history of mathematics selected to supplement regular course offerings in this area of mathematics. (May be repeated for credit with approval of the Department. Credit for the M.A. degree in Mathematics requires approval of the Department.)

(310) **MAT 4010. Topics in Decision Mathematics. (2-3) (2-3G)** Prerequisite: consent of the Department. Topics in decision mathematics selected to supplement regular course offerings in this area of mathematics. (May be repeated for additional credit with the approval of the Department. Credit for the M.A. degree in Mathematics requires approval of the Department.)

(320) **MAT 4020. Topics in Probability and Statistics. (2-3) (2-3G)** Prerequisite: consent of the Department. Topics in probability and statistics selected to supplement regular course offerings in this area of mathematics. (May be repeated for credit with the approval of the Department. Credit for the M.A. degree in Mathematics required approval of the Department.)

(340) **MAT 4040. Topics in Analysis. (2-3) (2-3G)** Prerequisite: consent of the Department. Topics in analysis selected to supplement regular course offerings in this area of mathematics. (May be repeated for credit with the approval of the Department. Credit for the M.A. degree in Mathematics requires approval of the Department.)

(360) **MAT 4060. Topics in Algebra. (2-3) (2-3G)** Prerequisite: consent of the Department. Topics in algebra selected to supplement regular course offerings in this area of mathematics. (May be repeated for credit with the approval of the Department. Credit for the M.A. degree in Mathematics requires approval of the Department.)

(370) **MAT 4070. Topics in Applied Mathematics. (2-3) (2-3G)** Prerequisite: consent of the Department. Toics in applied mathematics selected to supplement regular course offerings in this area of mathematics. May be repeated for credit with the approval of the Department. Credit for the M.A. degree in Mathematics requires approval of the Department.

(380) **MAT 4080. Topics in Geometry and Topology. (3) (3G)** Prerequisite: consent of the Department. Topics in geometry or topology selected as to supplement regular course offerings in this area of mathematics. (May be repeated for credit with approval of the Department. Credit for M.A. degree in Mathematics requires approval of the Department.

(409) **MAT 4109. History of Mathematical Thought. (3) (3G)** Prerequisite: consent of the Department. A study of the development of mathematics in its historical setting from the earliest beginnings to modern times. Not approved for the M.A. in Mathematics.

(423) **MAT 4123. Applied Statistics I. (3) (3G)** Prerequisites: MAT 2164 with a grade of C or better and junior standing; or consent of the Department Review of stochastic variables and probability distributions, methods of estimating a parameter, hypothesis testing, confidence intervals, contingency tables; linear and multiple regression, time series analysis.

(424) **MAT 4124. Applied Statistics II. (3) (3G)** Prerequisites: MAT 4123. One way analysis of variance; multiway classification; randomized complete-block designs, nested or hierarchial designs, Latin squares, factorial experiments; design of experiments.

(461) **MAT 4161. Number Theory. (3) (3G)** Prerequisite: MAT 2163 with a grade of C or better or consent of the Department. A study of the elements of classical number theory including divisibility, congruences, diaphantine equations, prime numbers and their distribution, quadratic reciprocity, number-theoretic functions, and famous unsolved problems. Not approved for the M.A. in Mathematics.

(463) **MAT 4163. Modern Algebra I. (3) (3G)** Prerequisite: MAT 2163 or consent of the Department. Groups, rings, integral domains, fields.

(464) **MAT 4164. Modern Algebra II. (3) (3G)** Prerequisite: MAT 4163 or consent of the Department. Vector spaces over arbitrary fields, linear transformations, canonical forms, multilinear algebra.

(465) **MAT 4165. Numerical Linear Algebra. (3) (3G)** Prerequisite: CSC 1100, MAT 2164 and 2171. Direct methods of solving linear systems, Gaussian elimination, triangular decomposition, condition numbers and accuracy of solutions, the algebraic eigenvalue problem, power and inverse power methods, Hessenberg form and the QR algorithm. Iterative methods for solving large sparse matrix systems, Jacobi, Seidel and SOR methods. Selected problems will be programmed for computer solution.

(476) **MAT 4176. Numerical Methods in Partial Differential Equations. (3) (3G)** Prerequisites: CSC 1100, MAT 2141, 2164 and 2171; all with a grade of C or better. The physical basis for partial differential equations of elliptic, parabolic and hyperbolic types. Finite difference methods, initial value problems, special topics. Software packages, ELL PACK, programming techniques.

(481) **MAT 4181. Introduction to Topology. (3) (3G)** Prerequisite: MAT 3183 or consent of the Department. Topics from set theory and point set topology such as cardinality, order, topological spaces, metric spaces, separation axiom, compactness and connectedness.

(491) **MAT 4691. Seminar. (1-6) (1-6G)** Prerequisite: consent of the Department. Individual or group investigation and exposition of selected topics in mathematics.

(492) **MAT 4692. Seminar. (1-6) (1-6G)** Prerequisite: consent of the Department. A continuation of MAT 4691.

(522) **MAT 5122. Statistical Techniques. (3) (3G)** Prerequisite: consent of the Department. Probability models, random variables, large sample statistics, inferential statistics. (Credit toward Mathematics major given only for students seeking secondary certification. Credit for mathematics major not given for both MAT 5122 and 3122. Not approved for the M.A. degree in Mathematics.)

(525) **MAT 5125. Nonparametric Statistical Methods. (3) (3G)** Prerequisite: MAT 2121 or 3122 or 4123. An introduction to nonparametric statistical techniques for analysis of real life data, including the Wilcoxon signed rank test, the Mann-Whitney U statistic, the Druskal-Wallis one way ANOVA test.

(543) **MAT 5143. Analysis I. (3) (3G)** Prerequisite: MAT 3141 or consent of the Department. First course of two-semester sequence providing rigorous treatment of continuity, differentiability and integration of functions of one and several real variables.

(544) **MAT 5144. Analysis II. (3) (3G)** Prerequisite: MAT 5143. Continuation of MAT 5143.

(572) **MAT 5172. The Finite Element Method. (3) (3G)** Prerequisite: CSC 1100, MAT 2141, 2164, and 2171; all with a grade of C or better or consent of the Department. Boundary value problems and their variational form. Finite element basis functions, computational techniques, isoparametric elements and curved boundaries, alternate methods, singular problems, eigenvalue problems. Some practical experience with an F.E.M. program and graphical output.

Courses for Graduate Students Only

(604) **MAT 6004. Topics in Analysis. (3G)** Prerequisite: MAT 6101 or consent of the Department. Topics in analysis selected so as to complement regular course offerings in this area of mathematics. (May be repeated for credit with the consent of the Department.)

(608) **MAT 6008. Topics in Geometry and Topology. (3G)** Prerequisite: MAT 6101 or consent of the Department. Topics selected from Euclidean geometry, Non-Euclidean geometry, projective geometry, differential geometry, point-set topology, algebraic topology. May be repeated for credit with approval of the Department.

(600) **MAT 6100. Foundations of Mathematics. (3G)** Prerequisite: consent of the Department. Logic, sets and axiomatic systems.

(601) **MAT 6101. Foundations of Real Analysis. (3G)** Prerequisite: MAT 6100 or consent of the Department. Axiomatic and historical development of the real and complex numbers; rigorous development of limits and continuity of functions, intermediate and extreme value theorems.

(602) **MAT 6102. Calculus from an Advanced Viewpoint. (3G)** Prerequisite: MAT 6101 or its equivalent. A continuation of MAT 6101. A rigorous approach to differentiation and integration of functions of one real variable.

(603) **MAT 6103. Computer Techniques and Numerical Methods. (3G)** Prerequisite: MAT 6101 or consent of the Department. Computer systems, programming, and the computer solution of numerical problems.

(606) **MAT 6106. Modern Algebra. (3G)** Prerequisite: MAT 2163 or its equivalent or consent of the Department. Topics chosen from group theory, rings and ideals, integral domains, fields and elementary Galois theory.

(607) **MAT 6107. Linear Algebra. (3)** Prerequisite: MAT 2164 or its equivalent or consent of the Department. Systems of linear equations, matrices, vector spaces, linear transformations, determinants, canonical forms of matrices, inner products.

(618) **MAT 6118. Non-Euclidean Geometry. (3)** Prerequisite: Consent of the Department. History of Euclid's Fifth Postulate and attempts to prove it; work of Gauss, Bolyai, Lobachevsky and others; systematic development of hyperbolic geometry; relative consistency of hyperbolic geometry; relative consistency of hyperbolic and Euclidean geometries.

(609) **MAT 6609. Seminar. (1, 2, or 3G)** Prerequisite: consent of the Department. A series of regularly scheduled meetings in which each student will present one or more topics selected by the instructor. May be repeated for credit with approval of the Department.

(750) **MAT 7050. Topics in Mathematics. (2-3G)** Prerequisite: consent of the Department. Topics chosen from such fields as algebra, topology, analysis, applied mathematics, differential geometry, mathematical physics, graph theory, probability, statistics. May be repeated for credit as topics vary and with the approval of the Department.

(720) **MAT 7120. Probability Theory. (3G)** Prerequisites: MAT 5143 and 3122 or consent of the Department. Topics include probability spaces, probability measures, sigma-algebras, charactistic functions, sequences of random variables, law of large numbers, general forms of the Central Limit Theorem.

(721) **MAT 7121. Statistics. (3G)** Prerequisites: MAT 7120 or consent of the Department. A survey of frequently used statistical techniques selected from: estimation theory and hypothesis testing; parametric and nonparametric techniques in the one and two sample location and dispersion problems; goodness of fit criterion and tests for independence; measures of association, regression techniques, multi-sample inferential techniques.

(741) **MAT 7141. Complex Analysis I. (3G)** Prerequisite: MAT 5143 or consent of the Department. Holomorphic functions, complex integration, residues, entire and meromorphic functions, conformal mapping, harmonic functions.

(742) **MAT 7142. Complex Analysis II. (3G)** Prerequisite: MAT 7141. A continuation of MAT 7141.

(743) **MAT 7143. Real Analysis I. (3G)** Prerequisite: MAT 5144 or consent of the Department. Lebesgue integration on the real line, L^p spaces, introduction to general measure and integration theory.

(744) **MAT 7144. Real Analysis II. (3G)** Prerequisite: MAT 7143. A continuation of MAT 7143.

(747) **MAT 7147. Applied Functional Analysis. (3G)** Prerequisite: MAT 5144. Introduction to functional analysis and its applications to such areas as linear and non-linear differential equations, integral equations, and control theory. Topics chosen from Banach spaces, operators, the Hahn-Banach, open mapping and closed graph theorems, Sobolev spaces, spectral theory, operators in Hilbert space.

(736) **MAT 7163. Modern Algebra I. (3G)** Prerequisite: MAT 4164 or consent of the Department. Topics will be selected from Galois theory, commutative algebra, modules, ring theory, homological algebra.

(764) **MAT 7164. Modern Algebra II. (3G)** Prerequisite: MAT 7163. A continuation of MAT 7163.

(771) **MAT 7171. Methods of Applied Mathematics. (3G)** Prerequisite: MAT 2171 and 3171 or consent of the Department. Selected topics involving applications of analysis such as variational methods in optimization, linear integral equations, vibration and eigen-value problems, and asymptotic expansions.

(776) **MAT 7176. Advanced Numerical Analysis. (3G)** Prerequisites: MAT 2164, 2171 and 5172. A selection of topics from such areas as iterative methods of solving linear and nonlinear systems of equations, approximation theory, splines, and finite element methods of partial differential equations.

(781) **MAT 7181. Topology I. (3G)** Prerequisite: consent of the Department. Topological spaces, continuous functions, connectedness, compactness, and metrizability, and further topics from point-set, geometric or algebraic topology.

(782) **MAT 7182. Topology II. (3G)** Prerequisite: MAT 7181. A continuation of MAT 7181.

(791) **MAT 7691. Research Seminar. (3G)** Prerequisite: consent of the Department. A seminar in which independent study may be pursued by the student or group of students under the direction of a professor.

(792) **MAT 7692. Research Seminar. (3G)** Prerequisite: consent of the Department. A continuation of MAT 7692.

(793) **MAT 7993. Thesis. (3G)** Prerequisite: Consent of the Department. Subject to the approval of the Department Graduate Committee the thesis may be original work, work of an expository nature, or the mathematical formulation and solution of a particular industrial or business problem suggested by the career interest of the student. The thesis must be defended in an oral presentation. May be repeated for credit with the consent of the Department.

MATHEMATICS EDUCATION

These courses are primarily for students seeking teacher certification, certificate renewal, or certificate upgrading. None of theses courses may be used to satisfy the mathematics requirements for a major in mathematics. They may be accepted as non-math electives for B.A. and B.S. degrees in mathematics and for the M.A. in mathematics education.

Courses for Undergraduates

(201) **MAE 2101. Mathematics for the Elementary School Teacher I. (4)** An intuitive development of the real number system with emphasis on the principles of teaching and learning elementary mathematics; sets and set operations; systems of numeration; arithmetic operations. Laboratory activities and practical teaching experience in an elementary classroom.

(202) **MAE 2102. Mathematics for the Elementary School Teacher II. (4)** Prerequisite: MAE 2101. Mathematical systems; the study of metric and nonmetric geometry; probability and statistics; relations, functions and their graphs. Activities and applications related to elementary and intermediate goals. Practical teaching experience in an intermediate classroom.

MAE 2103. Teaching Problem Solving Through Computers and Calculators. (3) Prerequisite: MAE 2102. Problem-solving in mathematics using computer and calculators in the classroom; calculators in the mathematics curriculum; microcomputer hardware and courseware in mathematics; LOGO and BASIC; data analysis, statistics and probability.

Courses for Advanced Undergraduates and Graduate Students

(500) **MAE 5000. Topics in Mathematics Education, Early Childhood. (1-6) (1-6G)** Consent of the Department.

(540) **MAE 5040. Topics in Mathematics Education, Intermediate. (1-6) (1-6G)** Consent of the Department.

(570) **MAE 5070. Topics in Mathematics Education, Secondary. (1-6) (1-6G)** Consent of the Department.

(501) **MAE 5101. Arithmetic in the School. (3) (3G)** Prerequisite: MAT 1101 or equivalent. A study of the number systems with emphasis placed upon the basic concepts and meanings, properties of addition, multiplication, inverses, systems of numeration and number line appropriate for each grade.(Does not count toward a major in mathematics. Open only to transfer students who have completed six semester hours of mathematics at another university.)

(504) **MAE 5104. Microcomputing for Teachers. (3) (3G)** Prerequisites: working knowledge of college algebra and trigonometry, and consent of the department. Introduction to basic computer concepts, to microcomputer systems, to the design and development of programs to assist instruction in mathematics and computer sciences. A programming language such as BASIC or PASCAL will be used. Each student will integrate skills learned by selecting, designing and developing a specific project. (No prior experience with computer or programming required.)

(505) **MAE 5105. Geometry for Teachers. (3) (3G)** Prerequisite: MAE 2102 or MAE 5101 or consent of the Department. A study of the foundations of Euclidean geometry and a brief treatment of non-Euclidean geometry. Emphasis on learning activities and teaching techniques for teachers of mathematics K-12.

(541) **MAE 5141. Mathematics for the Intermediate School Teacher. (3) (3G)** Prerequisites: MAE 2102 or consent of the Department. A study of the algebraic properties of the real numbers; functions, equations, inequalities and their graphs, activities and applications related to upper elementary and intermediate grades.

(571) **MAE 5171. Mathematics for the Secondary School Teacher. (3) (3G)** Prerequisites: MAE 2102 or Mathematics major with declared option for Secondary School Teacher Certification or consent of the Department. A study of secondary school mathematics and its relation to the curriculum K-12. Strategies, techniques and activities in teaching mathematics.

Department of Performing Arts

Chairperson: Associate Professor Beasley

Dance
Associate Professors: Sofras, Zimmermann
Visiting Assistant Professor: Orlock

Music
Professors: Booth, Mathis
Associate Professors: Appleton, Dailey, Dillard, Mosley, Turner
Visiting Assistant Professor: Hanna

Theatre
Associate Professors: Beasley, Croghan, Rackley, Reed

The Bachelor of Creative Arts degree (BCA) is awarded to students who have fulfilled the program of study for that degree. The student will choose from dance, music and theatre or a combination of these areas as the major focus of study.

The minimum residence requirement for a Bachelor of Creative Arts degree at the University of North Carolina at Charlotte specifies that a student must earn the last 30 semester hours of credit at the University. Because of the unique nature of the program, students should expect to spend at least four semesters as a Creative Arts degree student prior to graduation.

Teacher certification is available in dance. Students seeking certification in addition to the BCA degree should declare this intent to the area certification liaison person by the first semester of his/her sophomore year. A later decision to seek certification along with the BCA degree may result in a graduation date delayed by one or more semesters.

The BCA Degree programs are structured upon a number of premises which, in turn, form the unique goals of the program. These premises follow:

1. that the highest priority of an undergraduate university program in the arts should be to develop within its students the ability to identify artistic problems (or to articulate needs) and to solve them (or to structure experiences leading toward their resolution);

2. that one accumulates a wide range of data and moves toward varied experiences in response to a specific need or proble;

3. that a university program focused through the arts should lead its students to an awareness of the interrelatedness of all forms of knowledge and of the shared elements of the creative process, and should provide the opportunity to participate regularly and meaningfully in that creative process.

The Bachelor of Creative Arts programs are structured in response to these premises. The four-year programs are characterized by the student's ever increasing responsibility to organize and implement more significant portions of the individual curriculum and to demonstrate personal accountability and curriculum authenticity.

The programs may be used to address the needs of students working toward the goals of becoming performing artists, arts teachers or scholars and who also want to be generally educated through a study of the arts.

The central purpose of the programs is to instill in students the desire and the ability to discover specific problems and to marshal varied resources which lead to resolutions. The ideal "product" of the programs is a learner-in-process, rather than a finely-honed professional artist. The choice of the latter option is the student's prerogative; the development of the former is the purpose and obligation of the BCA degree program.

The programs' Curriculum Outlines follow simple structural patterns. The incoming student is faced with two needs: to develop an in-depth understanding of an ability to utilize the problem-solving approach to education; and to become conversant with concepts and facile with the skills fundamental to the chosen field of study. Freshman and sophomore course work is organized to meet these needs.

At the end of the second year of study the student is examined for evidence of facility in problem-solving methodology and fundamental skills sufficient to indicate potential for success in the more highly individualized junior and senior years.

In summary, the freshman and sophomore years are devoted primarily to developing the understanding and skills, as well as the self-motivation and self-discipline, requisite to successful completion of the program.

ADVISORY SYSTEM

The new student (freshman and transfer) will be assigned an adviser from the major area (dance, music or theatre). In addition to the meetings required for preregistration, the student and the adviser will meet informally throughout the semester.

Other students will be advised by the individual faculty member under whom they have registered for the individual project. Each student will meet weekly with his/her group and the adviser for the purpose of reviewing and discussing project work.

REVIEW PROCEDURES

First Year Review. The assembled area faculty, or a committee of at least three will review the work of each student having less than a 2.50 GPA at the end of his/her first year. The student will be present at the interview along with the PIPS instructor or a written recommendation from that instructor. The purpose of the review is to evaluate the potential of the student in terms of his/her goals in the major field of study. Students who show no evidence of development will be encouraged to alter their goals. No student will be withdrawn from the program at this point against his/her wishes, assuming the proper minimum grade point average is maintained.

Second Year Screening. A board of at least three faculty members or the assembled area faculty including the student's adviser, will review the student's progress near the end of his/her fourth semester. By this time the student is expected to have demonstrated, minimally:

A. an understanding of the problem-solving approach to education and a demonstration of his/her ability to make this understanding useful in the practice of the art. Evidence of this ability will include the successful completion of CA 2601 and a draft of the project proposal for CA 3601 that indicates an understanding of the problem-solving approach to education.

B. evidence of steady growth in skills requisite to potentially successful involvement in the chosen field. The student will present finished works, work in progress, portfolios, resumes, performances, demonstrations, etc., appropriate to the field.

When the review board finds by majority vote solid evidence that the student should be allowed to continue the pursuit of the BCA degree, the group will recommend to the respective area faculty the student's positive standing in the Department.

When the review board finds by majority vote insubstantial evidence that the student should be allowed to continue his/her pursuit of the BCA degree, that group will recommend to the respective area faculty one of the following:

1. That the student has failed to provide evidence of sufficient potential to pursue successfully his/her work toward the BCA degree and will be withdrawn from BCA degree candidacy.

2. That should the student wish to continue work toward the BCA degree that she/he should change his/her emphasis to another specified field within Performing Arts.

3. That the student may opt to repeat the fourth semester and again be reviewed at the end of that semester.

Notice of the student's standing in the Department will be sent to the student in written form from the respective area. The student may, within two weeks, appeal in writing the faculty decision. Appeal requests should be addressed to the departmental chairperson. A student may request a conference with the review board for reasons other than an appeal. Such requests should be made in writing to the student's adviser.

Third and Fourth Year Advisory Board. During the opening week of the student's junior year, she/he will choose two reviewers from the Creative Arts faculty. These reviewers must be approved by the CA 3601 adviser and should be maintained for the final two years. Their function is to review and advise on project proposals, make appropriate comments, and sign the proposal sheet prior to final approval by the adviser. The purpose for having these reviewers is to provide a consistence of familiarity with a student's development and to offer assistance in carrying out the project. The reviewers should have received a copy of the final project proposal, made appropriate comments, and have been informed of the previous project results before they proceed with advising students on future project proposals.

CURRICULUM OUTLINE
BACHELOR OF CREATIVE ARTS DEGREE
WITH AN EMPHASIS IN
DANCE

Freshman Year

CA 1101	3	CAD 1213	2
CAD 1212	2	CAD 1215	3
CAD 1214	3	CAD 1217	1
CAD 1216	1	Electives	6
Electives	3	English 1102	3
English 1101	3		
	15		15

Sophomore Year

CAD 1216	0	CAD 1217	0
CAD 2110	3	CAD 2111	3
CAD 2119	3	CAD 2223	1
CAD 2222	1	CAD 2225	3
CAD 2224	3	Elective: Track A	3-4
CAD 2601	3	Elective: Track B	3-4
Elective: Track B	3		
	16		13-15

Junior Year

CAD 1216	0	CAD 1217	0
CAD 2226	1	CAD 2227	1
CAD 2228	2	CAD 3235	3
CAD 3230	3	CAD 3602	3
CAD 3234	3	Elective: Track A	3
CAD 3601	3	Elective: Track B	3
Elective: Track B	3	Elective	3
	15		16

Senior Year

CAD 1216	0	CAD 1217	0
CA 3601	3	CAD 3692	6
CAD 3691	6	Elective: Track B	3
Elective: Track B	3	Electives	6
Elective	3		
	15		15

*Electives: *Track A:* *Courses outside Performing Arts which extend the student's previous understanding of artistic perception and artistic problem solving. Suggested courses include: Math, Languages, Sciences, English 3132, Philosophy 2101, 2105, 3225, Psychology 1101, 2109.*

Track B: *Courses outside Performing Arts which relate to the subject of the individual project or to the processes used by the student in developing the project.*

N.B. Review after accumulation of 60 cr. hrs. is required.

CURRICULUM OUTLINE
FOR THE
BACHELOR OF CREATIVE ARTS DEGREE
WITH EMPHASIS ON
MUSIC

Freshman Year

CA 1101	3	CAM 1132	3
CAM 1230	4	CAM 1231	4
CAM Applied Music	2	CAM Applied Music	2
English 1101	3	English 1102	3
CAM Electives	2-3	CAM Electives	2-3
CAM (Ensemble)	1	CAM (Ensemble)	1
**CAM 1248	1	**CAM 1248	1
Recital Seminar	0	Recital Seminar	0
	16-17		16-17

Sophomore Year

CAM 2601	3	CAM 2231	4
CAM 2230	4	CAM Applied Music	2
CAM Applied Music	2	**CAM 1248	1
**CAM 1248	1	CAM (Ensemble)	1
CAM (Ensemble)	1	Elective Track B	3
Elective Track B	3	*Elective: Track A	3-4
*Elective: Track A	3-4	Recital Seminar	0
Recital Seminar	0		
	17-18		14-16

Junior Year

CAM 3601	3	CAM 3602	3
CAM Elective	3	CAM Elective	3
*Electives (at least 3 hrs. from Track B)	6-7	*Electives (at least 3 hrs. from Track B)	6-7
CAM (Ensemble)	1	CAM (Ensemble)	1
Recital Seminar	0	Recital Seminar	0
	13-14		13-14

Senior Year

CAM 3691	6	CAM 3692	6
CA 3601	3	CAM (Ensemble)	1
CAM (Ensemble)	1	Elective: Track B	3-4
Elective: Track B	3-4	Recital Seminar	0
Recital Seminar	0	***Senior Recital	0
	13-14		10-11

*Electives: *Track A:* *Courses outside Performing Arts which extend the student's previous understanding of artistic perception and problem solving techniques. Suggested courses include: Math, Languages, Sciences, english 3132, Philosophy 2101, 2104, 3225, Psychology 1101, 2109.*

Track B: *Courses outside Performing Arts which relate to the individual projects or to the processes used by the student in developing the project.*

***All music majors must enroll in piano until the keyboard proficiency requirement is fulfilled.*

****All music majors must present either a half recital (20-30 minutes) or full recital (40-60 minutes) depending on the student's major emphasis.*

N.B. Review after accumulation of 60 cr. hrs. is required.

CURRICULUM OUTLINE
FOR THE
BACHELOR OF CREATIVE ARTS DEGREE
WITH AN EMPHASIS IN
THEATRE

Freshman Year

*CA 1101 or Area Elective	3	*CA 1101 or Area Elective	3
CAT 1201	3	CAT 1201	3
**CAT 1203	3	CAT 1205	3
CAT 1207	1	CAT 1207	1
English 1101	3	English 1102	3
Elective	3	Elective	3
	16		16

Sophomore

CAT 2601	3	CAT 2102 or Elective	3
CAT 2101 or 2216	3	CAT 1207	1
CAT 1207	1	***Track A	3
***Track A	3	***Track B	3
***Track B	3	Area Elective	3
Area Elective	3		
	16		13

Junior Year

CAT 3601	3	CAT 3602	3
CAT 2101 or 2216	3	CAT 2102 or Elective	3
CAT 1207	1	CAT 1207	1
***Track B	3	***Track B	3
Area Elective	3	Area Elective	3
	13		13

Senior Year

CAT 3691	6	CAT 3692	6
*CA 3601 or elective	3	*CA 3601 or elective	3
***Track B	3	***Track B	3
	12		12

**CA 1101, CA 3601 must be taken once.*

***or CA 1201 in spring semester.*

****Electives:*

Track A: *Courses outside Performing Arts which extend the student's previous understanding of artistic perception and artistic problem solving. Suggested courses include: Math, Languages, Sciences, English 3132, Philosophy 2101, 2105, 3225, Psychology 1101, 2109.*

Track B: *Courses outside Performing Arts which relate to the subject of the individual project or to the processes used by the student in developing the project.*

N.B. Review after accumulation of 60 cr. hrs. is required.

COURSE DESCRIPTIONS
CREATIVE ARTS (CA)

(101) **CA 1101. Perception. Interaction and Problem Solving. (3)** Theory and exercises in artistic problem identification and resolution. Required for performing arts major. Majors only.

(403) **CA 3601. Senior Seminar. (3)** Consideration of the interrelatedness of the elements of the arts with all knowledge. Majors only.

DANCE

(112) **CAD 1212. Ballet I. (2)** Fundamentals of ballet technique, barre and floor work. May be repeated for credit.

(113) **CAD 1213. Ballet II. (2)** Prerequisite: CAD 1212 or consent of instructor. Continuation of CAD 1212. May be repeated for credit.

(114) **CAD 1214. Modern Dance I. (3)** Combination of improvisation, effort-shape, elementary modern styles. May be repeated for credit. Four contact hours.

(115) **CAD 1215. Modern Dance II. (3)** Prerequisite: CAD 1214, or consent of instructor. Continuation of CAD 1214. May be repeated for credit. Six contact hours.

(116) **CAD 1216. Applied Dance and Repertory Lab. (1)** Prerequisite: Consent of instructor. Repertory and performance team taught by members of the dance faculty. Required of majors. Six contact hours.

(117) **CAD 1217. Applied Dance and Repertory Lab. (1)** Prerequisite: Consent of the instructor. Continuation of CAD 1216. Six contact hours.

(210) **CAD 2110. History of Dance I. (3)** Prerequisite: CAD 1215. Historical and cultural developments in dance using Louis Horst's Modern Dance Forms. Three lecture and three lab hours.

(211) **CAD 2111. History of Dance II. (3)** Prerequisite: CAD 2110. Historical and cultural developments in dance using Horst's Pre-Classic Dance Forms. Three lecture and three lab hours.

(219) **CAD 2119. Ideokineseology. (3)** Prerequisite: CAD 125. Concentration on visual and tactile aids as well as imagery for teaching dance and body re-education. Two lecture hours, two lab hours.

(220) **CAD 2120. Dance Education Methods I. (3)** Prerequisites: CAD 1215 or consent of instructor. Creative movement theories; techniques and skills for teaching the elementary school child. Three lecture hours, one lab hour.

(221) **CAD 2121. Dance Education Methods II. (3)** Prerequisite: CAD 1215 or consent of instructor. Experiences in techniques for teaching dance in secondary schools. Three lecture hours, one lab hour.

(212) **CAD 2222. Ballet III. (1)** Prerequisite: CAD 1213 or consent of instructor. Intermediate ballet; barre and centerwork. May be repeated for credit. Three contact hours.

(213) **CAD 2223. Ballet IV. (1)** Prerequisite: CAD 2222 or consent of instructor. A continuation of CAD 2222. May be repeated for credit. Three contact hours.

(214) **CAD 2224. Modern Dance III. (3)** Intermediate modern dance technique. May be repeated for credit. Six contact hours.

(215) **CAD 2225. Modern Dance IV. (3)** Prerequisite: 1215. A continuation of CAD 2224. May be repeated for credit. Six contact hours.

(216) **CAD 2226. Ethnic Forms I. (1)** Experiences in folk dance, character dance, and jazz. May be repeated for credit. Two contact hours.

(217) **CAD 2227. Ethnic Forms II. (1)** Expansion of CAD 2226. May be repeated for credit. Two contact hours.

(218) **CAD 2228. Creative Dance Experience. (2)** Prerequisite: CAD 1215. Exploration of basic dance elements: space, time, energy, and design. Majors only. Four contact hours.

(201) **CAD 2601. Sophomore Individual Project. (2)** Prerequisite: CA 1101. Project designed by the student with the assistance of the advisor and review committee. Majors only. Three contact hours.

(305) **CAD 3001. Topics in Dance. (1)** Special topic in dance. May be repeated for credit with change in topic. Two contact hours.

(310) **CAD 3230. Choreography. (3)** Prerequisites: CAD 2110, 2111, 2228. Methods and sources of dance composition. Six contact hours.

(314) **CAD 3234. Modern Dance V. (3)** Prerequisite: CAD 2225. Dance technique at an intermediate advanced level. May be repeated for credit. Six contact hours.

(315) **CAD 3235. Modern Dance VI. (3)** Prerequisite: CAD 2225. Continuation of 3234. May be repeated for credit. Six contact hours.

(301) **CAD 3601. Junior Individual Project I. (3)** Prerequisite: CAD 2601. Majors only. Three contact hours.

(302) **CAD 3602. Junior Individual Project II. (3)** Prerequisite: CAD 3601. Majors only. Three contact hours.

(401) **CAD 3691. Senior Individual Project II. (6)** Prerequisite: 3602. Majors only. Three contact hours.

(402) **CAD 3692. Senior Individual Project II. (6)** Prerequisite: 3691. Majors only. Three contact hours.

MUSIC (CAM)

(017A) **CAM 0971. Orchestra. (1)** Prerequisite: Consent of instructor. A performing ensemble. May be repeated for credit. Three contact hours.

(071B) **CAM 0972. Jazz Ensemble. (1)** Prerequisite: Consent of instructor. A performing ensemble. May be repeated for credit. Three contact hours.

(071C) **CAM 0973. Wind Ensemble. (1)** Prerequisite: Consent of instructor. A performing ensemble. May be repeated for credit. Three contact hours.

(071D) **CAM 0974. Guitar Ensemble. (1)** Prerequisite: Consent of instructor. A performing ensemble. May be repeated for credit. Three contact hours.

(081A) **CAM 0981. Oratorio Choir. (1)** A large performing ensemble. No audition required. May be repeated for credit. Three contact hours.

(081B) **CAM 0982. University Chorale. (1) Prerequisite: Audition. A performing ensemble. May be repeated for credit. Three contact hours.**

(081D) **CAM 0983. Madrigal Ensemble. (1)** Prerequisite: Audition. A performing ensemble. May be repeated for credit. Three contact hours.

(129) **CAM 1100. Rudiments of Music. (3)** Introductory skill-building course in music reading.

(132) **CAM 1132. Music Appreciation. (3)** Aural approach to musical comprehension. Offered each semester.

(130) **CAM 1230. Musical Structure and Style I. (4)** Prerequisite: Consent of instructor. Relationships of basic musical concepts within a historical context. Five contact hours.

(131) **CAM 1231. Musical Structure and Style II. (4)** Prerequisite: CAM 1230. A continuation of CAM 1230. Five contact hours.

(133) **CAM 1233. Class Piano I. (2)** Prerequisite: Consent of instructor. Class instruction in piano. Three contact hours.

(134) **CAM 1234. Class Piano II. (2)** Prerequisite: 1233 or consent of instructor. A continuation of CAM 1233. Three contact hours.

(137) **CAM 1237. Class Voice. (2)** Prerequisite: Consent of instructor. Class instruction in voice. Three contact hours.

(138) **CAM 1238. Guitar Class I. (2)** Prerequisite: Consent of instructor. Class instruction in guitar using contemporary popular music and music from a text. Three contact hours.

(139) **CAM 1239. Guitar Class II. (2)** Prerequisite: Consent of instructor. Continuation of CAM 1238. Three contact hours.

(141, 142, 241, 242, 341, 342)

CAM 1241. Applied Music: Trumpet. (1-2) Prerequisite: Consent of instructor. Private instruction. One-half hour instruction per week per credit hour. Minimum of one hour practice per day for one credit, two hours for two credits. May be repeated for credit.

CAM 1242. Applied Music: French Horn. (1-2) Prerequisite: Consent of instructor. See CAM 1241.

CAM 1243. Applied Music: Trombone. (1-2) Prerequisite: Consent of instructor. See CAM 1241.

CAM 1244. Applied Music: Tuba. (1-2) Prerequisite: Consent of instructor. See CAM 1241.

CAM 1245. Applied Music: Guitar. (1-2) Prerequisite: Consent of instructor. See CAM 1241.

CAM 1246. Applied Music: Harp. (1-2) Prerequisite: Consent of instructor. See CAM 1241.

CAM 1247. Applied Music: Organ. (1-2) Prerequisite: Consent of instructor. See CAM 1241.

CAM 1248. Applied Music: Piano. (1-2) Prerequisite: Consent of Instructor. See CAM 1241.

CAM 1249. Applied Music: Violin. (1-2) Prerequisite: Consent of Instructor. See CAM 1241.

CAM 1250. Applied Music: Viola. (1-2) Prerequisite: Consent of Instructor. See CAM 1241.

CAM 1251. Applied Music: Cello. Prerequisite: Consent of Instructor. See CAM 1241.

CAM 1252. Applied Music: Bass. (1-2) Prerequisite: Consent of instructor. See CAM 1241.

CAM 1253. Applied Music: Voice. (1-2) Prerequisite: Consent of instructor. See CAM 1241.

CAM 1254. Applied Music: Flute. (1-2) Prerequisite: Consent of instructor. See CAM 1241.

CAM 1255. Applied Music: Clarinet. (1-2) Prerequisite: Consent of instructor. See CAM 1241.

CAM 1256. Applied Music: Saxophone. (1-2) Prerequisite: Consent of instructor. See CAM 1241.

CAM 1257. Applied Music: Oboe. (1-2) Prerequisite: Consent of instructor. See CAM 1241.

CAM 1258. Applied Music: Bassoon. (1-2) Prerequisite: Consent of instructor. See CAM 1241.

CAM 1259. Applied Music: Percussion. (1-2) Prerequisite: Consent of instructor. See CAM 1241.

(237) **CAM 2137. Phonetics and Articulation for Singers I. (2)** Prerequisite: Consent of instructor. Pronunciation and articulation in vocal music in English, Italian, German and French. Three contact hours.

(238) **CAM 2138. Phonetics and Articulation for Singers II. (2)** Prerequisite: CAM 2137 and consent of instructor. Three contact hours.

(232) **CAM 2191. Music for Classroom Teachers. (3)** Acquisition of musical skills and relating them to methods and materials for teaching music in the classroom.

(233) **CAM 2192. Elementary Music Methods. (3)** Prerequisite: CAM 2191 or consent of instructor. Methods and materials for teaching music to elementary school children.

(234) **CAM 2193. Secondary Music Methods. (3)** Methods and materials for teaching music to junior and senior high school students.

(230) **CAM 2230. Musical Structure and Style III. (4)** Prerequisite: CAM 1231. Five contact hours.

(231) **CAM 2231. Musical Structure and Style IV. (4)** Prerequisite: CAM 2230. Five contact hours.

(201) **CAM 2601. Sophomore Individual Project. (2)** Prerequisite: CA 1101. Project designed by the student with the assistance of the advisor and review committees. Majors only. Three contact hours.

(305) **CAM 3001. Topics in Music. (1-6)** Prerequisite: Consent of instructor. Special topic in music. May be repeated for credit with change of topic.

(136) **CAM 3135. Choral Conducting. (3)** Prerequisite: CAM 2231. Developing conducting skills for interpreting choral music.

(135) **CAM 3136. Instrumental Conducting. (3)** Prerequisite: CAM 3135. Developing conducting skills for interpreting instrumental music.

(230) **CAM 3138. Counterpoint. (3)** Prerequisite: CAM 2231. Counterpoint beginning with 16th century techniques.

(235) **CAM 3139. Orchestration. (3)** Prerequisite: CAM 2231. Scoring and arranging for instruments and/or voice.

(071E) **CAM 3281. Chamber Music Ensembles. (1 or 2)** Prerequisite: Consent of instructor. Performance by small groups of specific works. Two sections: one with and one without keyboard.

(081E) **CAM 3283. Opera Workshop. (2)** Prerequisite: Audition. Performance of scenes, acts, and entire operas. May be repeated for credit. Three contact hours.

(301) **CAM 3601. Junior Individual Project I. (3)** Prerequisite: CAM 2602. Majors only. Three contact hours.

(302) **CAM 3602. Junior Individual Project II. (3)** Prerequisite: CAM 3601. Majors only. Three contact hours.

(401) **CAM 3691. Senior Individual Project I. (6)** Prerequisite: CAM 3602. Majors only. Three contact hours.

(402) **CAM 3692. Senior Individual Projects II. (6)** Prerequisite: CAM 3691. Majors only. Three contact hours.

(243) **CAM 3831. Composition. (2)** Prerequisite: CAM 2231 or consent of instructor. Private instruction. May be repeated for credit. One contact hour.

THEATRE (CAT)

(150) **CAT 1101. Introduction to Theatre. (3)** Survey and analysis of the elements which make up the theatrical event.

(162) **CAT 1102. Creative Drama. (3)** Drama and theatre as teaching tools to achieve educational ends in any subject in the classroom.

(152) **CAT 1201. Acting I. (3)** Introduction to acting derived principally from a system of vocal and physical training. Six contact hours.

(153) **CAT 1202. Acting II. (3)** Prerequisite: CAT 1201. A continuation of CAT 1201. Six contact hours.

(154) **CAT 1203. Stagecraft I. (3)** Construction and painting skills with some attention to basic elements of theatrical design. Crew hours required in addition to three contact hours.

(155) **CAT 1204. Stagecraft II. (3)** Expansion of CAT 1203.

(156) **CAT 1205. Introduction to Costuming Techniques. (3)** Introduction to costume shop equipment, sewing techniques, basic patterning and construction of costume accessories.

(157) **CAT 1206. Theatrical Make-Up. (3)** Modeling of the face as well as special clown, character and unusual make-up.

(160) **CAT 1207. Applied Theatre. (1-2)** Practical production experience with the UNCC Theatre Ensemble. May be repeated for credit.

(250) **CAT 2101. Theatre History I. (3)** Theatre history from pre-classical periods to the seventeenth century.

(251) **CAT 2102. Theatre History II. (3)** Seventeenth century to the present.

(258) **CAT 2103. Costume Design. (3)** Costume design theory and history.

(252) **CAT 2201. Acting III. (3)** Processes of character development based largely on the theories of Stanislavsky. Six contact hours.

(253) **CAT 2202. Acting IV. (3)** Prerequisite: CAT 2201. A continuation of CAT 2201. Six contact hours.

(254) **CAT 2203. Scene Study. (3)** Prerequisite: CAT 1202. Actor's Workshop dealing with the analysis, rehearsal and performance of scenes and one-act plays. May be repeated for credit. Six contact hours.

(255) **CAT 2204. Musical Theatre Performance Techniques. (3)** Prerequisite: CAT 1202. Actor's Workshop dealing with special skills required for the performance of musical theatre. Six contact hours.

(256) **CAT 2205. Scene Design I. (3)** Survey of the elements of scene design.

(257) **CAT 2206. Scene Design II. (3)** Model building.

(259) **CAT 2207. Puppetry. (3)** Types of puppets and the history of puppetry with emphasis on basic puppetry construction and production problems.

(262) **CAT 2212. Stage Lighting. (3)** Mechanics of electricity, light, lenses and control systems.

(263) **CAT 2213. Stage Properties. (3)** Survey of hand, set, and dress properties with emphasis on design and production techniques.

(264) **CAT 2214. Scene Painting. (3)** Scene painting techniques, using primarily water media.

(265) **CAT 2215. Advanced Costume Problems (3)** Draping and drafting of costume fitting and layout techniques, masks and millinery finishing methods.

(266) **CAT 2216. Play Directing I. (3)** Prerequisite: Six hours of acting and six hours of design; three hours of design may be taken concurrently. Principles and techniques of play directing including analyzing texts, staging, and communication with actors.

(267) **CAT 2217. Play Directing II. (3)** Prerequisite: CAT 2216. Continuation of CAT 2216, with emphasis on advanced analysis, coaching, communication with designers, and complex staging problems.

(268) **CAT 2218. Playwriting I. (3)** Writing scenes and performing dramatic readings of fellow writers's scenes. A number of plays will be analyzed.

(269) **CAT 2219. Playwriting II. (3)** Prerequisite: CAT 2218. Structure and techniques of writing longer works and of rewriting. Continuation of play analysis.

(201) **CAT 2601. Sophomore Individual Project. (2)** Prerequisite: CA 1101. Project designed by the student with the assistance of the advisor and review committees. Majors only. Three contact hours.

(305) **CAT 3001. Topics in Theatre. (1-6)** Special topic in theatre. May be repeated for credit with change of topic.

(301) **CAT 3601. Junior Individual Project. (3)** Prerequisite: CAT 2601. Majors only. Three contact hours.

(302) **CAT 3602. Junior Individual Project. (3)** Prerequisite: CAT 3601. Majors only. Three contact hours.

(401) **CAT 3691. Senior Individual Project. (6)** Prerequisite: CAT 3602. Majors only. Three contact hours.

(402) **CAT 3692. Senior Individual Project. (6)** Prerequisite: CAT 3691. Majors only. Three contact hours.

Department of Philosophy

Chairperson: Assistant Professor Toenjes
Professor: Fishman, Lincourt, Shumaker
Associate Professor: Presler
Assistant Professors: Croy, Gay
Assistant Professor Emeritus: Corkey

A major in philosophy consists of a minimum of 28 semester hours in philosophy and includes courses 2101, 2105, 3211, 3213 and senior thesis. Additional work is to be chosen from other philosophy offerings.

Required related work consists of 15 hours, such work to be chosen in consultation with the department representative or adviser. Students contemplating graduate study in philosophy are encouraged to undertake related work in the natural or physical sciences and to develop reading proficiency in German and French.

A minor in philosophy consists of 15 hours including the following courses and types of courses: PHI 2101; one course in Logic (PHI 1105, 2105, or 3235); one course in the traditional historical periods (Ancient, Medieval, Modern, or Contemporary); one course in the traditional problems area (Aesthetics, Ethics, Metaphysics, Theory of Knowledge, or another course of this type with departmental approval); and one additional three hour course.

COURSE DESCRIPTIONS

(105) **PHI 1105. Critical Thinking. (3)** Fundamental skills of clear thinking and critical assessment of typical messages by and between persons in everyday situations. Application of logical methods to advertisements, editorials, political speeches and textbooks to distinguish effective from ineffective forms of reasoning.

(201) **PHI 2101. Introduction to Philosophy. (3)** Basic concepts and problems of philosophy such as freedom and determinism, mind-body interaction, the status of moral judgments and the problem of perception. Readings from the works of representative philosophers both classical and contemporary.

(205) **PHI 2105. Deductive Logic. (3)** Principles of deductive logic, both classical and symbolic, with emphasis on the use of formal logic in analysis or ordinary language discourse.

(350) **PHI 3050. Topics. (3)** Prerequisite: consent of the department. Topics chosen from specific areas in philosophy such as freedom and determinism, imagination, detailed study of significant philosophical movements or works. May be repeated for additional credit with the approval of the department.

(360) **PHI 3060. Major Figure in Philosophy. (3)** Prerequisite: consent of instructor. An in-depth investigation into the thoughts and writings of a major figure in philosophy with special emphasis on primary sources. Included may be Plato, Aristotle, Descartes, Kant, and Heidegger, and others as necessitated by departmental needs and interests. May be repeated for additional credit with departmental approval.

(301) **PHI 3201. Meaning of Death. (3)** Death in the western tradition. Philosophical, religious, existential, psychological and literary readings clarifying conceptual problems in our ways of speaking about death. Understanding death as a horizon for understanding life. (Same as REL 3201.)

(305) **PHI 3205. Philosophy In and Of Literature. (3)** Prerequisite: PHI 2101 or permission of instructor. Relationship between philosophy and literature with special emphasis on the nature of literature as it presents concepts and evaluations. Readings will be in the theory of literature as well as in contemporary novels, plays and short stories for both their philosophical and their aesthetic properties.

(311) **PHI 3211. Ancient Philosophy. (3)** Prerequisite: PHI 2101 or junior standing. Western intellectual and philosophic thought from the early Greeks to the post-Aristotelian period. Readings from the pre-Socratics, Plato, Aristotle, Epicureans, Stoics, Skeptics and Neoplatonists.

(312) **PHI 3212. Medieval Philosophy. (3)** Prerequisite: PHI 2101. Western philosophical tradition from Augustine to William of Ockham. Readings include such other authors as Anselm of Canterbury, Bonaventure, Thomas Aquinas and Duns Scotus.

(313) **PHI 3213. Modern Philosophy from Descartes to Kant. (3)** Prerequisite: PHI 2101 or junior standing. Modern philosophic and scientific thought. Readings selected from respective works in the 17th to the 19th centuries.

(314) **PHI 3214. Contemporary Philosophy. (3)** Prerequisite: PHI 2101. Main problems of contemporary philosophy; pragmatism, logical positivism, linguistic analysis, existentialism.

(317) **PHI 3217. American Philosophy. (3)** Prerequisite: PHI 2101 or junior standing or consent of the instructor. European philosophic movements with counterparts in American thought, leading to distinctly American pragmatism, realism and humanism. Readings from 19th and 20th century philosophers.

(321) **PHI 3221. Ethics. (3)** Development of ethical thought in ancient and modern times, with special references to present day ethical problems. Readings from classical and contemporary sources.

(323) **PHI 3223. Existentialism. (3)** Prerequisite: PHI 2101 or consent of instructor. Existentialist tradition in philosophy and literature including such issues as: authenticity, absurdity and the meaning of life, freedom and morality, anguish, death, and atheism.

(325) **PHI 3225. Aesthetics. (3)** Prerequisite: PHI 2101 or junior standing. Major theories of art, including readings from Aristotle, Kant, Nietzsche, Collingwood, Dewey, Sanger and Beardsley. Emphasis on expression, criticism, the work of art, the creative process.

(326) **PHI 3226. Social and Political Philosophy. (3)** Prerequisite: PHI 2101 or permission of instructor. Philosophical concepts involved in understanding and evaluating the basic structure of societies (e.g., economic, educational, legal, motivational and political) including equality, fraternity, freedom and rights. Relevance to contemporary social and political issues stressed. Readings from classical and contemporary sources.

(328) **PHI 3228. Biomedical Ethics. (3)** Prerequisite: one philosophy course or junior standing. Major ethical dilemmas within the life sciences examined to assist students to identify, analyze, and decide ethical issues in a way they can defend their positions to themselves and others. Issues include abortion, death and dying, patient rights, and justice in the allocation of medical resources.

(331) **PHI 3231. Business Ethics. (3)** Prerequisite: one philosophy course or junior standing. Ethical problems confronting business as a social institution and individuals in business. Application of ethical theory to business institutions and practices, internal exchanges of business (e.g., hiring, promotions, working conditions, employer/employee rights and duties) and external exchanges (e.g., product safety, environment, depletion, marketing, advertising.)

(335) **PHI 3235. Advanced Logic. (3)** Prerequisite: PHI 2105. Advanced systems of logic, with emphasis upon symbolic logic and formal systematic characteristics such as axiomatics and proof techniques.

(342) **PHI 3242. Philosophy of Religion. (3)** Prerequisite: PHI 2101 or junior standing. Philosophical implications of religious experience including the definitions, development and diverse forms of the problems of belief and reason in modern thought. (Same as REL 3242.)

(445) **PHI 3245. Philosophy of Mind. (3)** Prerequisite: PHI 2101. Conceptual issues in the mind body problem and the problem of other minds. Analysis of concepts of intention, motivation, consciousness, imagination and emotion.

(347) **PHI 3247. Philosophy of Science. (3)** Prerequisite: PHI 2101 or 2105 or consent of instructor. Epistemological, methodological, metaphysical, interdisciplinary and meta-disciplinary issues arising out of science with "science" construed very broadly to imply a strong connection with all systematic inquiry, either past or present, into natural or social questions.

(375) **PHI 3275. Metaphysics. (3)** Prerequisite: PHI 2101. History of metaphysics, focusing on the concept of experience. Authors to be discussed include Aristotle, Hume, Lewis, Hegel, James, Peirce, Dewey and Whitehead.

(350) **PHI 3851. Practicum in Philosophy. (1-3)** Prerequisite: approval of the department. Directed individual study involving the student and instructor in rethinking and reworking some major problems in the teaching of undergraduate philosophy including interaction with a particular class, usually PHI 2101 or 2105, in the preparation, presentation and evaluation of the course. (Not for teacher certification.)

(350) **PHI 3859. Independent Study. (1-3)** Prerequisite: approval of the department. Directed individual study of a philosophical issue of special interest to the student. May be repeated for additional credit as the topics vary and with departmental approval. No more than six hours may apply toward the major in philosophy.

(491) **PHI 3991. Senior Thesis. (1)** Prerequisite: consent of the Department. Individual or group inquiry into selected philosophic problems. Exposition and discussion of the results.

(492) **PHI 3992. Senior Thesis. (1)** Prerequisite: consent of the Department. A continuation of PHI 3991 focused on preparation and presentation of a senior thesis.

Courses for Advanced Undergraduates and Graduate Students

PHI 4050. Topics in Philosophy. (3) (3G) Prerequisite: approval of the department. Extra work is required of students receiving graduate credit. Selected problems and issues in philosophy. May be repeated for additional credit as topics vary.

Department of Physics

Chairperson: Associate Professor Oberhofer
Professors: Pollak, Vermillion, Werntz
Associate Professors: Corwin, Mayes, Melton, Simpson
Assistant Professor: Aitken
Lecturer: Morris

B.A. IN PHYSICS

A major in physics leading to the B.A. degree consists of a minimum of 120 semester hours which fulfill the general degree requirements of the University. A minimum of 26 semester hours in physics with an average grade of *C* in the major area is required. The minimum of 26 hours must include Physics 2221, 2221L, 2231, 2231L, 2241, 2601, 3601, 3602, 4251 and at least nine additional hours at the 3000/4000 level to be approved by the department.

B.S. IN PHYSICS

A major in physics leading to the B.S. degree consists of a minimum of 120 semester hours which fulfill the general degree requirements of the University. A minimum of 36 semester hours in physics with an average grade of *C* in the major area is required. The minimum 36 hours must include Physics 2221, 2221L, 2231, 2231L, 2241, 2601, 4221, 4231, 4241, 3601, 3602, 4251, four hours to be selected from 3281, 3282, 3283, and 4800 with a maximum of two hours credit in 4800; and at least six additional hours at the 3000/4000 level to be approved by the Department.

For either program a first year sequence of Physics 1101 and 1102, or Chemistry 1101 and 1102 is recommended. Students should note that Mathematics 1141, 1142, 2141, 2171 or their equivalents are prerequisites for various required physics courses. Freshmen should arrange their mathematics schedule so as to complete Math 1141 before beginning their sophomore year.

MINOR IN PHYSICS

A minor in Physics is available to all undergraduates except Physics majors and requires PHY 2221, 2221L, 2231, 2231L and 2241 and six additional hours in physics selected from the 3000 level or above.

COURSE DESCRIPTIONS

ASTRONOMY

Courses for Undergraduates

(103) **PHY 1130. Introduction to Astronomy. (3)** Historical beginnings of astronomy. Motions of celestial bodies. Introduction to space science. The solar system. Optical and radio astronomy. Structure and evolution of stars. Galaxies, cosmology. Three lecture hours each week. If taken together with 1130L the combination can be counted toward the general degree requirements in natural science.

(103L) **PHY 1130L. Introduction to Astronomy Laboratory. (1)** Prerequisite or corequisite: PHY 1130. Experimental investigations relating to the acquisition of and interpretation of astronomical data. One three-hour laboratory each week.

PHYSICS

(101) **PHY 1101. Introductory Physics I. (4)** Introduction to the fundamental principles of natural phenomena. Topics will be selected from traditional classical subjects (e.g., Newtonian mechanics, electromagnetism) and more recent developments in order to illustrate the logical structure of modern science. Three lecture and three laboratory hours each week.

(102) **PHY 1102. Introductory Physics II. (4)** Prerequisite: PHY 1101. A continuation of PHY 1101. Three lecture and three laboratory hours each week.

(141) **PHY 1141. Modern Physics for Non-Science Students. (3)** Treatment of physical theories developed since 1900. Topics include relativity, quantum physics, nuclear physics and elementary particles. Historical and philosophical aspects are stressed throughout the course. Three lecture hours a week.

(105) **PHY 1150. Basic Concepts and Teaching Methods in Physical Science. (4)** Intended primarily for students in teacher education. Content, process and attitude of science are explored, along with methods for teaching science to children. Topics include basic scientific concepts such as energy, interaction, relativity of motion, scientific model, as well as teaching strategies and their relationship to theories of learning and development, such as Piaget's theory. May not be counted toward the eight-hour general degree requirement in natural science. Six laboratory/class hours per week.

(190) **PHY 1600. Seminar I. (0)** Students attend scheduled programs of scientific talks by faculty, students and/or visiting speakers. Films illustrating physics principles, recent developments or the broad historic and cultural relationship of science and society will be viewed. Regular attendance is required. Normally meets once every other week for up to two hours.

(221) **PHY 2221. Dynamics. (3)** Prerequisite: MAT 1141. Kinematics and dynamics of particles; momentum, work, energy; conservation laws, mechanics of rigid bodies. Three lecture hours a week.

(251) **PHY 2221L. Experimental Physics I. (1)** Corequisite: PHY 2221. The first course of a laboratory sequence developing toward open-ended experiments designed to illustrate physical principles, to develop experimental technique and to encourage individual investigation by the student. Experiments in classical mechanics. One three-hour laboratory each week.

(231) **PHY 2231. Electricity and Magnetism. (3)** Prerequisites: PHY 2221 or 2225; MAT 1142. Electric and magnetic fields in free space and in matter; electrostatic potential and capacitance; elementary circuit theory; electromagnetic induction and inductance; introduction to Maxwell's equations. Three lecture hours a week.

(252) **PHY 2231L. Experimental Physics II. (1)** Prerequisite: PHY 2221L. Corequisite: PHY 2231. Experiments in electricity and magnetism. One three-hour laboratory each week.

(241) **PHY 2241. Introduction to Wave and Modern Physics. (3)** Prerequisite: PHY 2231. Introduction to waves in elastic media; sound; light, reflection; refraction; interference and diffraction; lenses and mirrors; and an introduction to quantum physics, atomic and nuclear structure, and the wave nature of matter. Three lecture hours a week

(291) **PHY 2601. Seminar II. (1)** Prerequisite: PHY 1600. A introduction to techniques of scientific inquiry and communication. The formulation of simple scientific questions. The attack of real problems by construction of elementary models using assumptions, estimates and preliminary calculations. The use of reference material and modes of presentation of a scientific talk. One class hour per week.

Courses for Advanced Undergraduates

(395) **PHY 3000. Topics in Physics. (0-4)** Prerequisite: consent of the Department. Used to comply with requests for special topics which are introductory in nature. May be repeated with approval of the department.

(311) **PHY 3181. A.C. Circuits and Electronics. (4)** Prerequisites: PHY 2231 and PHY 2231L. An introduction to A.C. circuit theory and electronics and an emphasis on the function and behavior of the individual components of an electronic circuit. Two hours of lecture and one three-hour laboratory each week.

(301) **PHY 3201. Waves and Optics. (3)** Prerequisites: PHY 2225 or 2241, PHY 2231, MAT 1142. Topics include the mathematics of wave motion, light as an example of an electromagnetic wave, the superposition of periodic and non periodic waves, and selected topics from geometrical and physical optics; three lecture hours each week.

(357) **PHY 3281. Advanced Laboratory in Waves and Optics. (2)** Prerequisite: PHY 2231L. Selected laboratory work primarily in geometrical optics, physical optics and microwaves. Three hours of laboratory each week.

(361) **PHY 3282. Advanced Laboratory in Modern Physics. (2)** Prerequisites: PHY 2241 and PHY 2231L or PHY 2241 and consent of Department. Selected laboratory work in such areas as atomic spectra, radioactive decay and the interaction of radiation with matter. Three hours of laboratory each week.

(371) **PHY 3283. Advanced Laboratory in Mechanics. (2)** Prerequisite: PHY 2231L. Selected laboratory work in the area of classical mechanics. Topics are chosen for their relation to important principles and techniques or for their historical significance. Three hours of laboratory each week.

(397) **PHY 3400. Internship in Community Education and Service. (3)** Prerequisite: junior standing, acceptance into the internship program and approval by the Physics Department. A project oriented, service-learning internship with cooperating community organizations. Does not count as credit toward departmental requirements in physics. May be repeated once with permission of the department. This course is offered on a *pass/no-credit* basis.

(391) **PHY 3601. Seminar III. (1)** Prerequisite: PHY 2601. Same as PHY 1600 except the student will normally be required either to submit a term paper or to give an oral presentation of an independent investigation at one of the scheduled programs.

(491) **PHY 3602. Seminar IV. (1)** Prerequisite: PHY 3601. A continuation of PHY 3601.

Courses for Advanced Undergraduates and Graduate Students

(495) **PHY 4000. Selected Topics in Physics. (0-4) (0-4G) semester hours credit. May be repeated with approval of the Department.** Prerequisite: consent of the Department. Used to comply with requests for more advanced special topics.

(321) **PHY 4221. Classical Mechanics I. (3) (3G)** Prerequisites: PHY 2221; MAT 2141 and 2171. The first course of a two-semester sequence treating particle dynamics, the motion of systems of particles, rigid body motion, moving coordinate systems. Lagrange's equations, Hamilton's equations and small oscillations. Three lecture hours a week.

(421) **PHY 4222. Classical Mechanics II. (3)(3G)** Prerequisite: PHY 4221. Continuation of PHY 4221. Three lecture hours a week.

(331) **PHY 4231. Electromagnetic Theory I. (3)(3G)** Prerequisites: PHY 2231; MAT 2141 and 2171. The first course of a two-semester sequence. Topics considered include electrostatics and magnetostatics in free space and in matter, the motion of charged particles in electric and magnetic fields, capacitance, dielectric theory, field energy, electromagnetic induction and inductance, vector and scalar potentials, magnetic properties of matter. Maxwell's equations, solutions of Maxwell's equations in free space and in matter, propagating electromagnetic waves, and boundary value problems. Three lecture hours a week.

(431) **PHY 4232. Electromagnetic Theory II. (3)(3G)** Prerequisite: PHY 4231. Continuation of PHY 4231. Three lecture hours a week.

(341) **PHY 4241. Modern Physics. (3) (3G)** Prerequisites: PHY 2241, MAT 2141 and MAT 2171. Special relativity, postulates of quantum physics, solutions of the one-dimensional Schrodinger wave equation, the hydrogen atom, and spin. Three lecture hours a week.

(441) **PHY 4242. Quantum Mechanics. (3) (3G)** Prerequisite: PHY 4241. An extension of PHY 4241 to include more advanced topics such as generalized eigenvalue problems, angular momentum, spin, the hydrogen atom, and pertubation theory, with selected applications from atomic, solid state, and nuclear physics. Three lecture hours a week.

(345) **PHY 4251. Thermal Physics. (3) (3G)** Prerequisites: PHY 2241 or consent of the Department. An introduction to heat, thermodynamics, kinetic theory, and statistical physics. Topics include classical thermodynamics, classical and quantum theory of specific heats, Maxwell-Boltzmann, Fermi-Dirac and Bose-Einstein distributions. Three lecture hours a week.

(451) **PHY 4800. Investigations. (1-4)(1-4G)** Prerequisite: junior standing and consent of Department. An independent investigation by the student on an appropriate topic. Both a written and an oral presentation of the results of the investigation will be required.

(411) **PHY 411. Nuclear Physics. (3)(3G)** Prerequisite: PHY 2231 and 2241, and MAT 2171. A study of the nucleus, radioactivity, nuclear reactions, fission, fusion interactions of radiation with matter and measurement of radiation. Three hours lecture per week.

Department of Political Science

Chairperson: Professor Mundt
Professor Emeritus: Winningham
Professors: Arrington, Jamgotch, Lyons, McCoy
Associate Professors: Brenner, Dorin, Fleitas, Mead
Assistant Professors: Brown, Chernotsky, Rassel, Rhodes
Adjunct Professor: Burkhalter
Lecturer: Fox

B.A. IN POLITICAL SCIENCE

A major in political science for the B.A. degree requires: (1) 30 semester hours of political science to include: (1) at least two courses from the subfield of American Politics and/or Public Administration; (2) one course in the subfield of Comparative Politics; (3) one course in the subfield of International Relations; (4) PSC 3220 (Research Methods), and PSC 3990 (Senior Project). No more than nine hours of credit from PSC 4400 (Practicum in Applied Political Science), PSC 4800 (Independent Study) and/or PSC 3400 (Internship in Political Science) can be offered to fulfill major requirements for a Political Science major.

Students may opt to receive the Bachelor of Arts in Political Science with a concentration in International Studies. A concentration in International Studies shall include at least 18 hours (of a total of 30) in courses listed in the catalog under International Relations, Comparative Politics and Area Studies. Majors are encouraged to diversify their course work in International Studies by taking 24 hours in at least three of the following fields: anthropology, comparative literature, comparative sociology, comparative religions, geography, international business, economics and trade, modern foreign language and 19th and 20th century history. (The fulfillment of this requirement satisfies the Department's general related work requirement.)

MINOR IN POLITICAL SCIENCE

A minor in political science requires: (1) 18 semester hours of political science to include at least one course from the subfield of American Politics (including Public Administration), one course from the subfield of Comparative Politics, and one course in the subfield of International Relations; and (2) a minimum grade point average of 2.0 in the 18 (or more) hours attempted for the minor.

The offerings, including introductory courses, are divided into the following major subfields: American Politics, Comparative Politics and Area Studies, International Relations, Political Theory, Public Administration and Research in Political Science.

MASTER OF URBAN ADMINISTRATION

The primary objective of the Master of Urban Administration degree program is to provide a curriculum which offers professional training in public administration with a special emphasis on the management of local government systems. The curriculum emphasizes the analysis of the urban environment as well as the administrative decision-making approaches of urban administration.

Program Design. The Master of Urban Administration program is structured into three distinct phases: (1) Core; (2) Advanced Work; and (3) Directed Study. In all, the program requires 36 hours of graduate credit for completion of the degree.

Core: All students are required to complete courses in each of three core areas; (a) Survey of the Urban Environment; (b) Theory and Practice of Urban Administration; and (c) Administrative Analysis. The emphasis in the core area phase is twofold: achieving an overall perspective on the problems of urban administration *and* comprehending the various managerial and analytical approaches salient to the local governmental environment.

After completion of the core requirements and before enrolling for an additional nine hours, each student must successfully complete a comprehensive examination before continuing work toward the degree.

Advanced Courses: The MUA program offers a number of advanced courses in areas of importance to public administrators including application of analytic tools and understanding of public administration processes. With the approval of an advisor, students may elect to take advanced work with other departments.

Directed Study: Each master's degree candidate is expected to complete a project on a topic of significance based on a field experience in urban administration. This requirement can be satisfied by individual experience gained through professional involvement in public administration or experience obtained through an approved internship with a governmental unit.

Program Instruction and Scheduling. The methods of instruction employed in the program are designed to expose students to a variety of approaches to urban management. These methods include simulations, role playing, problem analysis, lectures and case studies. The ability to analyze complex managerial problems can be developed only by combining theoretical principles and practical administrative experience. The instructional program is designed to expose the student to both principles and experience.

Students may enroll in the Master of Urban Administration program on either a full-time or part-time basis. Classes are scheduled in the evening throughout the year. Full-time students may carry more than a normal course load (see page 62) only with permission of their advisers.

COURSE DESCRIPTIONS

AMERICAN POLITICS

Courses for Undergraduates

(110) **PSC 1101. Introduction to American Politics. (3)** Role of the President, Congress, Supreme Court and national administrative agencies in the American political system. Relationship between the American people and their political institutions with emphasis upon political culture, the electoral process, political parties, interest groups and political communication.

PSC 1720. Honors Seminar in Political Science. (3) Prerequisite: Permission of the Department. Investigation of the basic issues of politics, e.g., democracy, pluralism, justice, equality, freedom, interdependence and the relationship between people and their political institutions, as well as comparisons among nations.

Courses for Advanced Undergraduates

(301) **PSC 3101. Political Socialization. (3)** Processes by which the political culture of the society is transmitted, formally and informally, to individual members. Learning process, the agents of socialization, the content of the learning and the consequences of political socialization for the functioning of the political system.

(303) **PSC 3103. Public Opinion and the Mass Media. (3)** The nature and influence of public opinion and the effects of the news media on public opinion and political behavior. Research on the development and content of public opinion and social psychological studies on the process of opinion change.

(304) **PSC 3104. Mass Media and Politics. (3)** Relationship between the media in the United States and (1) the political activities of individual citizens and (2) governmental policy making. Ownership and control of the media, government regulation of the media, news programming and media impact on voter behavior and governmental policy making bodies.

(305) **PSC 3105. Voting and Elections. (3)** Psychological, sociological and political variables that influence voting behavior and that affect electoral stability and change with emphasis on studies derived from survey research.

(309) **PSC 3109. Political Parties and Interest Groups. (3)** Analysis of the role played by political parties and interest groups in the American political system.

(311) **PSC 3111. The Congress. (3)** Analysis of the role of the Congress in the American political system and its relationships with the other branches of government. Recruitment and socialization of congressmen, the commitee system and roll call analysis.

(312) **PSC 3112. The Presidency. (3)** Analysis of the role of the Presidency in the American political system and its relationships with the other branches of government. Strategies of presidential nomination and election, the sources and indicators of presidential power, how those who have held the office have shaped it and been shaped by it.

(313) **PSC 3113. Judicial Decision Making. (3)** Survey of the empirical studies concerning the determinants of the behavior of judges.

(314) **PSC 3114. American Constitutional Law. (3)** Development of American constitutionalism, with a major emphasis on the roles played by the Supreme Court in the emergence of the American political system. Studies the justices as intellectual personalities engaged in the formulation of national policies. Utilizes Supreme Court decisions and opinions, histories, biographies and political science analyses to study the evolution of governmental powers and individual rights from colonial America through the end of the Roosevelt Court or Stone Court in 1946.

(315) **PSC 3115. Civil Rights and Liberties. (3)** Supreme Court decisions relating to civil rights and liberties.

(316) **PSC 3116. Judicial Process. (3)** Analysis of the structure and functions of federal and state courts in the context of the American political system. Emphasis upon the roles of judges, juries, counsel, litigants, police, interest groups and other actors in the adjudication processes.

(317) **PSC 3117. Politics of Criminal Law. (3)** Politics of the Supreme Court interactions with the Congress, Presidency, Justice Department and the states in the formulation of policies related to the criminal law.

(318) **PSC 3118. Law and Social Change. (3)** Relationship between law and social changes with emphasis upon the strengths and weaknesses of courts in bringing about social changes.

(319) **PSC 3119. State Politics. (3)** Comparative analysis of the 50 states, utilizing socio-economic characteristics, structural traits and policy outputs as the primary variables of interest.

(320) **PSC 3120. Politics of the South. (3)** Selected political patterns and recent trends within the 11 states of the southern United States. Basic elements of continuity and change which characterize southern politics.

(321) **PSC 3121. Urban Politics. (3)** Analysis of the political processes in the nation's metropolitan areas and the adjustments and responses of the U.S. governmental system in attempting to cope with the urban area.

(322) **PSC 3122. Contemporary Urban Problems. (3)** A study of selected urban problems, including an analysis of the causes and consequences of governmental policies designed to cope with these problems. Topics of interest would include: crime and law enforcement, poverty and welfare, urban transportation, education, pollution, housing and redevelopment, and urban revenue and expenditure patterns.

(324) **PSC 3124. U.S. Domestic Policy. (3)** An examination of the processes of and influences on policy making, including goals and objectives of current U.S. domestic policy. Attention will focus on major policy areas and may include such topics as fiscal and monetary policy, education, transportation, management of the national economy, agriculture among others.

COMPARATIVE POLITICS AND AREA STUDIES

Courses for Undergraduates

(130) **PSC 1130. Politics in Foreign Nations. (3)** Political comparisons among nations. Diverse geographical emphases, including some of the following: Latin America, the Atlantic communities of the West, Central and Eastern Europe, the Middle East, Africa, Central Asia, East Asia and Southeast Asia.

Courses for Advanced Undergraduates

(331) **PSC 3131. The Nature of Political Change. (3)** Comparative study of political change with reference to problems of reform, revolution and nation-building.

(323) **PSC 3133. Women and Politics. (3)** Examines the political roles of women in electoral and non-electoral political systems in diverse regions of the world.

(335) **PSC 3135. Political Violence. (3)** Designed to address four questions: (1) What is political violence? (2) Why does it occur? (3) What is its relationship to other political processes? (4) What is its impact on society? The emphasis of this course, while drawing on examples from contemporary American and foreign scenes, is on examining manifestations of violent political behavior such as pathological violence, conspiratorial violence, collective violence and government violence.

(336) **PSC 3136. Comparative Urban Politics. (3)**Urban growth, urban problems and political response in cross-national perspective. Focus on the urban policy process including political explanations for variations in national urban growth and urban structure. Attention to selected case and comparative studies on the U.S., Europe, Latin America, Africa and Asia.

(337) **PSC 3137. Political Corruption. (3)** The use of public office for private ends in the United States and in comparative perspective.

(341) **PSC 3141. Government and Politics of Western Europe. (3)** Comparative analysis of selected West European governments including Great Britain, France, Germany and Italy.

(343) **PSC 3143. African Politics. (3)** A comparative perspective on the politics of independence in sub-Saharan Africa and on the performance of the new political systems there in terms of national and international integration and the modernization of traditional societies and economies.

(345) **PSC 3145. Government and Politics of the Soviet Union. (3)** The origins of Bolshevism and the substance and role of Marxist-Leninist ideology. The structure and functions of the Communist Party of the Soviet Union (CPSU). The principles of Soviet politics and the instruments of rule. The Soviet political system in transition and its relationship to world communism.

(346) **PSC 3146. Communist Politics in Comparison. (3)** Studies the most dynamic features of communist public order systems including the Soviet Union, Poland, Czechoslovakia, Hungary, Yugoslavia, Cuba and the People's Republic of China. Compares ideologies, party leaderships, youth movements, interest groups, political dissent and the politics of human mobilization and national development.

(347) **PSC 3147. Government and Politics of Latin America. (3)** Comparative study of the political development of Latin American political systems with reference to selected aspects and problems of contemporary politics in the region.

(348) **PSC 3148. Government and Politics of China. (3)** The origins, development and maintenance of the Chinese political system. The organization and function of the Chinese Communist Party (CCP) and other political groups. The impact of tradition on contemporary Chinese politics.

(349) **PSC 3149. Government and Politics of Asia—Democratic Systems. (3)** Political behavior and the growth of democratic political institutions in selected Asian states, particularly Japan. Emphasis on the nature of political change and political process—political participation and recruitment, political socialization, party systems and voting behavior, policy formation. Cross-national comparison with non-Asian democratic systems.

INTERNATIONAL POLITICS

Courses for Undergraduates

(150) **PSC 1150. Introduction to International Politics. (3)** Analysis of politics among nations: material and psychological sources of national power, the role of law, force and diplomacy in world politics, problems of peace and disarmament, and international organization.

Courses for Advanced Undergraduates

(351) **PSC 3151. International Political Economy. (3)** Political dynamics of economic relationships among industrially advanced nations. Attention is focused on the political aspects of monetary, trade, and investment relationships and the political difficulties involved in coordinating policy and maintaining effective international management.

(352) **PSC 3152. Politics of Development. (3)** This course examines the political factors underlying the economic relations between developed and developing nations. Attention is focused on the political forces shaping global negotiations for political and economic reform, the proposals of developing nations for the creation of a new international development strategy, and the responses of developed nations to these proposals.

(353) **PSC 3153. Political Foundtions of International Order. (3)** The structure, processes and problems of general and regional international organizations, and the origins and contemporary role of international law.

(354) **PSC 3154. Investment in Human Survival. (3)** Investigation of the major challenges to human survival posed by population excess, food shortages, resource depletion, ecological abuse, social injustice and the arms race. Contributions from various academic fields are drawn together for political analysis and a design of world futures to elevate the quality of life.

(357) **PSC 3157. American Foreign Policy. (3)** The evolution of U.S. national security interests and contemporary decision-making. Explores both domestic resources and international determinants of foreign policy, and emphasizes strategic and tactical responses to the critical global problems of our time.

(359) **PSC 3159. Soviet Foreign Policy. (3)** The concepts, content and evolution of Soviet foreign relations, with emphasis upon change and continuity in Russian and Soviet policies. Contemporary problems of Soviet diplomacy with other world powers and with the Marxist-Leninist nations of the Communist international system.

(361) **PSC 3161. Problems of Defense and National Security Policy. (3)** Investigates major concepts of war and the problems of arms control, escalation and the proliferation of nuclear weapons. Examines trends and conditions of international conflict, technological change and domestic political environments as they relate to defense and national security.

(362) **PSC 3162. International Law. (3)** An historical and political analysis of the sources and development of international law. Particular attention is given to the role of modern international law in the relations of nation-states and its application to contemporary global problems.

(365) **PSC 3165. East Asia in World Affairs. (3)** An examination of the basic factors governing East Asia's role in world affairs, both traditionally and in the present day.

POLITICAL THEORY

(371) **PSC 3171. History of Classical Political Thought. (3)** Major concepts and systems of political thought from Plato to the 17th century.

(373) **PSC 3173. History of Modern Political Thought. (3)** Major concepts and systems of political thought from the 17th century to the present.

(375) **PSC 3175. Law, Justice and Morality. (3)** An analysis of such law-related issues as justification for criminal punishment, the obligation to obey the law, the enforcement of morals and war and morality.

PUBLIC ADMINISTRATION

(383) **PSC 3183. Administrative Behavior. (3)** The role of the administrator and public bureaucracy in modern democratic society. Particular attention will be given to the interplay of forces created by executives, legislators, political parties and interest groups.

(384) **PSC 3184. Decision Making in Public Administration. (3)** An examination of the major schools of decision making theory: rationalism, incrementalism and mixed-scanning. The use of these approaches in public administration in areas of budgeting, organization and program design, and personnel will be studied, using problem sets and simulation techniques.

(387) **PSC 3187. Urban Administration. (3)** A study of administration in the context of the urban setting. Attention will be given to urban governmental bureaucracies, their response to and interaction with their environments, and their roles in developing urban policy.

Courses for Advanced Undergraduates and Graduate Students

PSC 4183. Fundamentals of Public Administration. (3) (3G) Introduction to the theory and practice of public administration at the graduate level. Intellectual heritage of the field and the nature of administration with emphasis on the administration process within the larger political environment. (Credit not given for both PSC 3183 and PSC 4183.)

PSC 4184. Public Sector Organization Theory. (3) (3G) Decision making theories including approaches drawn from fields other than political science, e.g., psychology, sociology and economics. Focus on nature and setting of decision making in public sector organizations. (Credit not given for both PSC 3184 and PSC 4184.)

RESEARCH IN POLITICAL SCIENCE

(391) **PSC 3220. Research Methods in Political Science. (4)** An introduction to research methods in political science to include a brief consideration of the following topics: philosophy of science literature; the place of research methods in the discipline of political science; research design; research strategies and techniques; data interpretation. Three lecture hours and one two-hour laboratory period per week.

(490) **PSC 3990. Senior Project. (3)** Prerequisite: PSC 391. The student completes an article length research paper or other project under the direct supervision of a member of the faculty. The paper or project must involve quantitative or other methods of modern political analysis. In seminar fashion the students and a faculty member will meet to discuss and criticize the senior projects.

TOPICS IN POLITICAL SCIENCE

(300) **PSC 3000. Selected Topics in Political Science. (1-4)** An intensive study of a political topic. The particular topic investigated may vary from semester to semester, and a student may take more than one course under this number.

(480) **PSC 3400. Internship in Political Science. (3-6)** The student receives a practical experience in politics by working for a party, campaign organization, political office holder, news medium, government agency or other political organization. Minimum of 150 working hours for three hours credit; minimum of 300 working hours for six hours credit. No more than six credits may be received by any student through this course. Pass/No Credit grading only

(495) **PSC 3700. Honors Seminar. (4)** Prerequisite: approval by departmental Honors Committee. An intensive study of a selected topic in political science, designed to challenge and develop the intellectual ability of the participants.

(496) **PSC 3701. Honors Thesis. (4)** Prerequisite: approval by the departmental Honors Committee and completion of PSC 3700 with a grade of *A*. Research and writing of an honors thesis.

PSC 4000. Advanced Topics in Political Science. (1-4) (1-4G) Intensive study of an advanced political topic. Topics may vary from semester to semester and a student may take more than one course under this number.

(399) **PSC 4400. Practicum in Applied Political Science. (1-3) (1-3G)** Prerequisite: permission of the instructor. This course provides students with the opportunity to apply political science concepts in a simulated (real-world) setting under the supervision of a faculty member. (May be repeated for credit with departmental permission.)

(400) **PSC 4800. Independent Study. (1-3) (1-3G)** Prerequisite: consent of the instructor. Supervised investigation of a political problem that is (1) of special interest to the student; (2) within the area of the instructor's special competence; and (3) normally an extension of previous course work with the instructor. A student may take more than one course under this number but may not enroll for more than three hours in any particular semester.

Courses for Graduate Students Only

(600) **PSC 6000. Topics for Graduate Study in Political Science. (1-4G)** Prerequisite: graduate standing. An intensive graduate-level study of a political topic. The particular topic investigated may vary from semester to semester, and a graduate may take more than one course under this number.

(601) **PSC 6101. Seminar in Urban Politics. (3G)** Competing models of urban politics are considered in the context of the political and socioeconomic development of the city as well as from the perspective of the city as a unit in a complex federal system. Attempts to define the roles of various individuals, officials and groups in urban politics.

(602) **PSC 6102. Seminar on Urban Problems and Public Policy. (3G)** Examination of substantive problems facing actors in the urban political system and exploration of alternatives to deal with them. Topics may include: urban revenues and expenditures, housing and redevelopment, poverty and human services, crime and law enforcement, environmental protection and public education.

(627) **PSC 6106. Introduction to Urban Administration. (3G)** An introduction to the basic literature of public administration and consideration of theoretical questions of administration as an independent field of study and practice, particularly as applied to an urban setting.

(613) **PSC 6113. Organization Theory and Human Behavior in Public Organizations. (3G)** Changing images of people, organizations and organizational environments; research findings and applications related to motivation, leadership, communications, decision-making, group dynamics, interpersonal skills, group problem solving skills; ethics and values.

(614) **PSC 6114. Changing the Public Organization. (3G)** Overview of concepts and methodologies of organization development, diagnosing organizational needs, change strategies and interventions.

(620) **PSC 6120. Public Values and Urban Administration. (3G)** Prerequisite: completion of two courses in the MUA program or permission of the instructor. Normative and value considerations important for the study and practice of public administration, ethical systems, an assessment of value systems and the impact of competing value systems on public policy making.

(610) **PSC 6125. Quantitative Research Methods in Urban Administration. (3G)** Introduction to the use of quantitative analysis in administration. Special emphasis on issues of research design, data collection, elementary statistical analysis, and the interpretation and presentation of research findings.

(650) **PSC 6127. Policy Analysis. (3G)** Analysis of the policy making process, with particular attention to urban policy making. Development and application of policy analysis methods.

(630) **PSC 6130. Public Budgeting. (3G)** An overview of public budgeting theory and practice including budgeting concepts and practices in federal, state and local government settings. History and public budgeting, phases of the budget cycle, executive-legislative relations, and budgetary reform efforts will be covered.

(634) **PSC 6132. Urban Financial Management. (3G)** Introduction to and analysis of theory and practice of financial management in public organizations, with emphasis on urban governments. Comparison and contrast between public and private sector fiscal practices. Topics will include patterns of taxation, capital budgeting, accounting and auditing, case and debt management, municipal bonding and public sector pension policy.

(632) **PSC 6134. Public Personnel Management. (3G)** Study of the context of public personnel administration; basic functions of job evaluation and compensation, employee rights and responsibilities; the legal constraints including equal opportunity, health and safety, collective bargaining; government productivity.

(641) **PSC 6140. Labor Management Relations in Government. (3G)** Public employee unionization, collective bargaining, unit determination and recognition; negotiation; third-part processes; administration of agreements.

(640) **PSC 6141. Conflict Management in Public Organization. (3G)** The role of the administrator as a focal point in social change and the management of the conflict which occurs. Perspectives on the negotiation and bargaining process will be reviewed.

(655) **PSC 6155. Seminar in Public Program Evaluation. (3G)** Exploration of the problems of and prospects for evaluating the efficiency, effectiveness and impact of public programs, reviews evaluative research designs and measurement problems, and the attempts to integrate the evaluation function with the planning and budgetary process.

(611) **PSC 6160. Information Systems in Urban Administration. (3G)** A discussion of the nature of information systems in urban administration. Particular attention to developing understanding of administrative control and use of technology, and the processes, policies and issues associated with urban information systems.

(622) **PSC 6170. Law and Urban Policy. (3G)** Role of the judicial process in shaping urban policy in the field of urban administration and the role of administrative law in influencing behavior of urban policy organizations.

(685) **PSC 6185. Urban Intergovernmental Relations. (3G)** Survey of the complex relationships of governments in an urban environment set in the federal system. A review of the problems created by that system and the approaches to their solutions.

(639) **PSC 6187. Advanced Seminar in Public Management Problem Solving. (3G)** Seminar viewed as a capstone to the student's course work in public management and is required to be taken by all students. Seminar devoted to topics in public management which involve problem identification and solution.

(695) **PSC 6195. Robert A. Taft Institute of Government. (3G)** Open under special arrangement. *Pass-No Credit* grading.

(690-691) **PSC 6800-6801. Directed Study in Urban Administration. (G)** Individual project report on a directed topic of significance based on field experience in urban administration. *Pass-No Credit* grading.

Department of Psychology

Chairperson: Professor Cann
Professors: Calhoun, Diamant, Goolkasian, Selby, Simono
Associate Professors: Fernald, Gilmore, Lamal, Long, Maisto, Park, Puglisi, Siegfried, Sohn, Tedeschi, Terry, Toner, Wachowiak, Windholz
Assistant Professors: Cook, Sultan
Lecturer: Bumgardner

B.A. IN PSYCHOLOGY

Requirements for Major in Psychology

A major in Psychology leading to the B.A. degree consists of 29 hours of psychology. These hours must include General Psychology (1101 and 1101L), Research Methodology (2102), History and Systems (3103), a senior seminar (3612, 3613, 3619, 3625, 3630, 3635, 3650, 3670) and two courses from each of the following lists:

Experimental Options

Hereditary Behavior (3117)
Introduction to Behavior Modification (2112)
Comparative Psychology (3110)
Psychology of Learning (3111)
Motivation (3114)
Sensation and Perception (3115)
Human Cognitive Processes (3116)
Physiological Psychology (3113)
Basic Processes in Psychological Assessment (3140)

Developmental/Social/Applied Options

Child or Adolescent Psychology (2120, 2121)
Adjustment or Abnormal Psychology (2150, 3151)
Industrial/Organizational Psychology (2171)
Social Psychology (3130)
Psychology of Personality (3135)

Other course requirements for majors are MAT 1222 (Elements of Statistics), two courses from the subject area of biology, chemistry, earth science or physics and six hours of social science exclusive of psychology. Students must also meet the University requirements in English and Humanities.

The additional courses necessary to fulfill the 29-hour requirement of the major should be selected to aid the student in the attainment of higher goals. However, the student cannot include more than three hours credit in Psychology 3405 and three hours credit in Psychology 3806 in the 29-hour requirement of the major, nor will the student be allowed to take more than eight hours in Psychology 3405 or Psychology 3806.

The Psychology Department offers course sequences designed to provide a more in-depth exposure to certain areas of psychology. Sequences are currently available in Behavior Modification, Child Psychology, Clinical Psychology, Industrial Psychology and Psychometrics. Detailed information about these sequences is contained in the Psychology Department Student Handbook which is available in the Psychology Office.

The student must also develop an area of related work which consists of 18 semester hours to be arranged by the student and the faculty adviser. Related work should be considered in terms of the fulfillment of the individual's vocational and educational goals. Students who receive teacher certification may use the education sequence as related work.

The Psychology Department has a unique program of honors work in psychology. Upper level honors courses are offered for exceptionally qualified majors and special honors sections of lower level courses, including General Psychology, are open to outstanding students in any discipline.

Requirements for Minor in Psychology

A minor in Psychology consists of 19 semester hours of Psychology to include PSY 1101, 1101L and a minimum of one course from both the experimental options group and the developmental/social/applied group. A minimum of six hours of coursework at the 3000 level or above is required. No more than three semester hours of PSY 3806 may be counted toward the minor and PSY 3405 may not be used for the minor.

RECOMMENDED CURRICULUM FOR THE B.A. DEGREE IN PSYCHOLOGY

Freshman Year

Psychology 1101 3	Psychology (2109, 2150, 2120, 2121, or 2171 3
Psychology 1101L 1	Humanities 3
Math 1101 or 1103 3	MAT 1222, Social Science 3
Natural Science (with lab; either biology, chemistry, earth science or physics) 4	Natural Science (either biology, chemistry earth science or physics) 3-4
English 3	English 3
14	15-16

Sophomore Year

Psychology 2102 4	Psychology (Experimental Option) 3
Social Science 3	(Developmental/Social/Applied Option) .. 3
Related Work 3	Related Work 3
Elective 3	Social Science 3
Humanities 3	Elective 3
16	15

Junior Year

Psychology (Experimental Option) 3	Psychology (3000 level and above) 3-6
(Developmental/Social/Applied Option) .. 3	Related Work 6
Related Work 6	Electives 3-6
Electives 3	
15	15

Senior Year

Seminar in Psychology 3	Seminar in Psychology 3
or	or
Psychology 3103 3	Psychology 3103 3
Electives 12	Electives 11
15	14

MASTER OF ARTS DEGREE IN PSYCHOLOGY

The objective of the UNCC master's degree program in psychology is to train psychologists in the knowledge and skills necessary to address problems encountered in industry and urban living. The program has an applied emphasis and is designed to serve both full-time students and part-time evening students who need to improve their on-the-job skills and enhance their career development. There is an extensive practicum component utilizing the Charlotte community as a setting for applied experience.

Students may choose from two areas of concentration—Community/Clinical or Industrial/Organizational. Both programs require a minimum of 40 semester hours of graduate course work, of which 28 must be at the 6000 level or above. Six hours may be transferred from another accredited institution, other UNCC disciplines or from the 5000-level psychology courses taught prior to the implementation of the graduate program (except PSY 4140), subject to departmental approval.

A core of courses in basic knowledge and methods in psychology is required of students in both concentrations. This core includes 10 semester hours of the following:

PSY 6102: Research Design and Quantitative Methods in Psychology (3)
PSY 6145: Program Evaluation (3)
PSY 7999: Thesis (3)
PSY 6107: Ethical and Professional Issues in Psychology (1)

In addition, all students are required to successfully complete comprehensive examinations in the general disciplines as well as the area of concentration.

Community/Clinical

Students selecting this concentration will develop knowledge and skills in psychological assessment, various intervention strategies, work with particular populations, research evaluation and consultation. The following course work is required:

PSY 6151: Behavior Disorders (3)
PSY 6155: Community Psychology (3)
PSY 6141: Intellectual Assessment (3)
PSY 6150: Psychological Treatment (3)
PSY 6450: Practicum in Clinical Psychology (3)
PSY 6455: Practicum in Community Psychology (3)
PSY 6142: Personality Assessment (3)

Additional courses may be required for an individual student's program of study, as determined by the academic adviser and the Community/Clinical Program Committee.

Industrial Organization

Students selecting this concentration will develop knowledge and skills to deal with problems of people at work. Among the issues to be studied will be personnel selection, design and evaluation of various types of programs including those aimed at training employees, increasing performance, reducing conflict and enhancing job satisfaction. The following course work is required:

PSY 6140 Psychological Measurement and Evaluation (3)
PSY 6107: Ethical and Professional Issues in Psychology (1)
PSY 6171: Industrial/Organizational Psychology (3)
PSY 6477: Projects in Industrial/Organizational Psychology (3)

Nine credit hours from the following:

PSY 6172: Personnel (3)
PSY 6173: Individual Dynamics (3)
PSY 6174: Group Dynamics (3)
PSY 6175: Organizational Dynamics (3)
PSY 6126: Counseling in Organizations (3)

Students in the Industrial/Organizational Psychology concentration are strongly encouraged to take six semester hours of practicum. Additional courses may be required for an individual student's program of study as determined by the academic adviser and the Industrial/Organizational Program Committee.

COURSE DESCRIPTIONS

Courses for Undergraduates

(101) **PSY 1101. General Psychology. (3)** A survey of the field including such topics as learning, emotions, motivation, personality, psychological testing and abnormal behavior. Emphasis on psychology as a behavioral science. May be taken with or without the lab. All Psychology majors and those who wish to apply this course as partial fulfillment of the University science requirement must take PSY 1101L during the same semester in which they take PSY 1101.

(101L) **PSY 1101L. General Psychology Laboratory. (1)** Two one-hour laboratory periods per week. An introduction to laboratory equipment and procedures. (May not be taken apart from the lecture portion of PSY 1101 except by Psychology majors who have permission of the Department.)

(241) **PSY 2102. Research Methodology. (4)** Prerequisites: PSY 1101, PSY 1101L and MAT 1222. Experimental, observational and correlational methods of psychological research. Basic concepts of philosophy of science will also be discussed. Emphasis on methodology rather than content and applicability of methods to current topics in psychology. Three lecture hours and one two-hour laboratory period a week.

(202) **PSY 2109. Educational Psychology. (3)** Prerequisite: PSY 1101. The psychology of learning; problems related to concept formation and application of behavior modification techniques to the classroom.

(296) **PSY 2112. Introduction to Behavior Modification. (4)** Prerequisite: PSY 1101. Methods and constructs of behavior modification including the application of the methods to laboratory research. Three lecture hours and one two-hour laboratory period a week.

(220) **PSY 2120. Child Psychology. (3)** Prerequisite: PSY 1101. Psychological development in infancy and childhood, including the development of learning, thought, language, social relations, intelligence and morality. Remedial measures suggested in dealing with early child tendencies which might otherwise lead to severe academic and social difficulties.

(230) **PSY 2121. Adolescent Psychology. (3)** Prerequisite: PSY 1101. Developmental and psychological characteristics of adolescence with emphasis on research methods and familiarity with case studies school and personality problems.

(203) **PSY 2150. Psychology of Adjustment. (3)** Prerequisite: PSY 1101. The study of the process of adjustment. Consideration is given to psychological reactions to critical problems encountered in modern life. Introduction to different approaches to psychotherapy.

(271) **PSY 2171. Introduction to Industrial/Organizational Psychology. (3)** The study of people at work; what motivates people to work and what leads to satisfaction, alienation or performance; how to lead others, the structure of an organization and processes of communication, decision making and conflict; socialization through selection and training; measurement of individual contributions; the design of work itself; way to change and develop entire organizations.

(401) **PSY 3001. Topics in Psychology.** Prerequisite: consent of the instructor. Examination of special psychological topics. May be repeated for credit as topics vary.

(461) **PSY 3103. History and Systems of Psychology. (3)** Prerequisite: PSY 1101. Influential psychological systems and their historical antecedents. Emphasis on Gestalt, psychoanalytic and behavior theory.

(310) **PSY 3110. Comparative Psychology. (3)** Prerequisite: PSY 1101. Animal and human behavior from a comparative point of view. Emphasis on the classification of behavior patterns as well as the origin and development of these patterns.

(311) **PSY 3111. Psychology of Learning. (3)** Prerequisite: PSY 1101. (Completion of PSY 2102 is strongly recommended.) Major theories and empirical findings in the area of learning.

(396) **PSY 3112. Consequences and the Sources of Behavior Control (4)** Prerequisite: PSY 2112. Application of the principles and techniques of the experimental analysis of behavior to a variety of behavior problems in a number of different environments with an emphasis on extrapolation to new and different problems and settings. (Students will be required to develop individualized projects utilizing the material discussed in class.)

(451) **PSY 3113. Physiological Psychology. (3)** Prerequisite: PSY 1101. The relationship of physiological systems to integrated behavior. Emphasis on neural aspects of behavior and current studies in relation to drug and other stimuli.

(312) **PSY 3114. Motivation. (3)** Prerequisite: PSY 1101. Current theories and research in the area of human and animal motivation.

(313) **PSY 3115. Sensation and Perception. (3)** Prerequisite: PSY 1101. (Completion of PSY 2102 is strongly recommended.) Sensory and perceptual processes, including such topics as psychophysics, information processing and color.

(430) **PSY 3116. Human Cognitive Processes. (3)** Prerequisite: PSY 1101. Processes involved in such complex human behaviors as language (acquisition and usage), memory and problem solving with emphasis upon experimental findings and current theories.

(315) **PSY 3117. Hereditary Behavior. (3)** Prerequisite: PSY 1101. Potential genetic and environmental contributions to behavior and psychological processes. History of the nature-nurture issue in psychology; animal and human research methods; statistical analysis of behavior-genetic data; and the heritability of learning ability, intelligence, personality and psychopathology.

(480) **PSY 3118. Research Methods in Physiological Psychology. (4)** Prerequisites: PSY 1101 and permission of the instructor. Current laboratory techniques in physiological psychology, including basic surgeries, lesioning, stimulation, recording, and histology. Three lecture hours and one two-hour laboratory period a week.

(320) **PSY 3122. Cognitive and Language Development. (3)** Prerequisites: PSY 1101 and PSY 2120. Development of language, thought and related behaviors in children, including information processing, Piaget's theory of cognitive development, acquisition of sentence structure, and biological foundations of language.

(321) **PSY 3123. Social and Personality Development. (3)** Prerequisites: PSY 1101 and PSY 2120. Social and personality development of children, including infant social behavior, socialization practices, independence and achievement, aggression, sex-role development and moral development.

(322) **PSY 3124. Psychology of Adult Development and Aging. (3)** Prerequisites: PSY 2120 or PSY 2121, or equivalent. Psychological development through adulthood and old age. Emphasis on processes underlying continuity and change in adulthood, including personality and socialization, cognitive development and the psychophysiology of aging.

(303) **PSY 3130. Social Psychology. (3)** Prerequisite: PSY 1101. The social behavior of individuals. Individuals' behavior in relation to others. Attitude change, social conflict, social interaction, social perception and social influence processes; general theories of social behavior and research approaches.

(305) **PSY 3135. Psychology of Personality. (3)** Prerequisite: PSY 1101. Current personality theories. Consideration given to psychoanalytic, physiological, trait and factor, the perceptual viewpoints in the light of contemporary research.

(301) **PSY 3140. Basic Processes in Psychological Assessment. (3)** Prerequisites: PSY 1101 and PSY 1101L, MAT 1222. Psychological testing, including scaling procedures, reliability and validity, correlational techniques used in test construction, a review of various kinds of psychological tests and basic approaches to test interpretation.

(404) **PSY 3150. Introduction to Clinical Process. (4)** Prerequisites: PSY 3151 and 2150. Theories of behavior intervention including behavioral management, crisis intervention and clinical assessment. The course includes a two-hour lab, involving behavioral rehearsal and practical training techniques.

(307) **PSY 3151. Abnormal Psychology. (3)** Prerequisite: PSY 1101. A history of psychopathology. Case studies, differential diagnosis, psychological dynamics of abnormal behavior, including theoretical, clinical and experimental contributions in the field.

(420) **PSY 3152. Child Psychopathology. (3)** Prerequisites: PSY 1101, 2120 and 3151 or the equivalent. Principles of classification, assessment and treatment of children and adolescents who display deviant affective, cognitive and social behavior.

(308) **PSY 3155. Community Psychology. (3)** Social forces, particularly within the context of organizations and/or communities, which affect the development of psychopathology and/or personal competency, with emphasis on preventing psychopathology and increasing competency. Topics include the concept of prevention; assessment of organizations; communities and other environments; methods of instituting organizational and community change; evaluating the effects of community interventions; social policy analysis; and ethical issues involved in community work.

(372) **PSY 3172. Psychology of Personnel: Employee Selection and Classification. (3)** Prerequisites: PSY 2102 and 2171 or consent of instructor. Methods, techniques and procedures used to select and classify employees.

(373) **PSY 3173. Psychological Bases of Training Programs. (3)** PSY 1101, 2171, or consent of instructor. Application of alternative theories about adult learning to the development and conduct of training programs in industry. Topics include how to develop training needs, a description of methods available to trainers such as programmed instruction and sensitivity training, and how to evaluate the effects of various training techniques.

(489) **PSY 3405. Practicum in Applied Psychology. (1-4)** Prerequisite: junior standing and permission of the instructor and the Psychology Department. Work in practical settings related to psychology under the supervision of a faculty member. May be repeated for credit with departmental permission. The student must have obtained approval in the semester preceding the semester in which the practicum is to be taken. Offered only on a *Pass/No Credit* basis.

(496) **PSY 3612. Seminar in Behavior Modification. (3)** Prerequisites: PSY 2112 and 3112. Current issues in behavior modification, including an integration of principles, techniques and practical experiences.

(493) **PSY 3613. Seminar in Physiological Psychology. (3)** Prerequisite: PSY 1101 and permission of the instructor. Intensive study of selected topics in physiological psychology, such as psychopharmacology, biofeedback and the neuro-physiological basis of learning and memory.

(494) **PSY 3619. Seminar in Experimental Psychology. (3)** Prerequisite: PSY 1101 and permission of the instructor. In-depth examination of an area of current concern in the psychological laboratory. Each semester will have a different focus such as discrimination learning, memory, experimental analysis of behavior and attention.

(495) **PSY 3625. Seminar in Developmental Psychology. (3)** Prerequisite: PSY 1101 and permission of the instructor. Concentrated examination of current issues and research in a field of developmental psychology including such topics as the concepts of development in historical and current usage, learning (especially in human infants), development of social relations, intelligence, cognitive abilities and the acquisition of language.

(492) **PSY 3630. Seminar in Social Psychology. (3)** Prerequisite: PSY 1101 and permission of the instructor. Intensive study at the advanced level of topics of current research and theoretical interest in social psychology.

(491) **PSY 3650. Seminar in Human Adaptation and Behavior. (3)** Prerequisite: senior standing and permission of the instructor. Intensive reading and discussion in selected areas of psychology, such as stress, personality, emotions and psychopathology.

(498) **PSY 3655. Seminar in Community Psychology. (3)** Prerequisites: PSY 3151, 2150 or permission of the instructor. Application of psychological research findings to specific problems in the community with emphasis on problems hypothesized directly to affect psychological well-being.

(497) **PSY 3670. Seminar in Industrial Psychology. (3)** Prerequisites: PSY 2171 and consent of instructor. Topics of current concern in industrial/organizational psychology and related disciplines including issues that affect individuals at work and organizations in society.

(490) **PSY 3806. Individual Studies in Psychology. (1-4)** Prerequisite: permission of the instructor and the Psychology Department. Directed individual study which may take the form of initiating, designing and conducting an original research problem or a critique and synthesis of existing research. May be repeated for credit. The student must have obtained approval in the semester preceding the semester in which the course is to be taken.

Courses for Advanced Undergraduates and Graduate Students

(504) **PSY 4140. Tests and Measurements. (3)(3G)** Prerequisites: PSY 1101. Psychological and educational measurements in current use with emphasis on structure, administration and application of group tests. Individual tests such as Stanford-Binet, WISC and WAIS will be reviewed.

(599) **PSY 5006. Selected Topics in Psychology. (3)(3G)** Prerequisites: junior, senior or graduate standing. Examination of special psychological topics.

(501) **PSY 5152. Psychology of Exceptional Children. (3)(3G)** Assessing and treating the exceptional child. Emphasis on current research in several diagnostic categories, including the emotionally disturbed, learning disabled, mentally retarded, physically handicapped and gifted.

(503) **PSY 5153. Psychology of Mental Retardation. (3)(3G)** Psychological and sociological aspects of mental retardation in relation to adjustment and educational development. Emphasis on current research and diagnostic categories.

Courses for Graduate Students Only

(699) **PSY 6099. Topics in Psychology. (3G)** A discussion of selected topics in psychology.

(601) **PSY 6102. Research Design and Quantitative Methods in Psychology. (3G)** Prerequisites: MAT 1222 and PSY 2102 or equivalent. Experimental and correlational methods of psychological research, including single subject designs with emphasis on research design and the application of statistical methods to psychological research.

(650) **PSY 6107. Ethical and Professional Issues in Psychology. (1G)** Roles and responsibilities of psychologists, including ethical standards in professional practice, testing and research; expectations and problems confronting psychologists in industrial, clinical and professional organizations.

(611) **PSY 6111. Psychology of Learning and Memory. (3G)** Principles, theories and current research in learning with emphasis on human learning and memory.

(613) **PSY 6112. Applied Behavior Analysis. (3G)** Use of behavior principles in applied settings. Topics include: behavioral assessment, positive and negative reinforcement, punishment, extinction, stimulus control, maintenance and generalization of behavior change. Each student will design and carry out a behavior change project.

(610) **PSY 6113. Physiological Psychology. (3G)** The relationships between the nervous system and behavior. Topics include the structure of the nervous system and nerve conduction, the functional organization of the central nervous system, neuronal and hormonal control of behavior, biofeedback and other appropriate topics.

(612) **PSY 6115. Sensation and Perception. (3G)** Processes involved in receiving and interpreting sensory data including all the sensory systems with an emphasis on vision.

(614) **PSY 6120. Developmental Psychology. (3G)** Psychological development across the lifespan.

(616) **PSY 6124. Psychology of Aging. (3G)** Prerequisite: permisison of the Department. Psychology of aging with particular emphasis on issues related to community/clinical psychology and industrial/organizational psychology. Topics include myths and stereotypes about aging, problems faced by older workers, retirement, mental health and normal aging, counseling the older adult, and psychological disorders in later life.

(615) **PSY 6130. Social Psychology. (3G)** Human social behavior; topics include affiliation, person perception, conformity and attitudes.

(602) **PSY 6140. Psychological Measurement and Evaluation. (3G)** Prerequisite: PSY 6102. Measurement of psychological characteristics such as scaling, reliability, validity and norms; construction and use of the intelligence tests, personality inventories, interest tests, attitude scales, etc., interviewing, survey techniques and behavioral assessment.

(631) **PSY 6141. Intellectual Assessment. (3G)** Prerequisite: PSY 6102 and permission of the department. Theories of intelligence and methods of intellectual assessment, including practice in administering intelligence tests, interpreting results, and writing evaluation reports.

(634) **PSY 6142. Personality Assessment. (3G)** Prerequisite: PSY 6151, 6141 or permission of the department. Theories and methods used in the assessment of personality and psychopathology including practice in administering personality tests, interpreting results and writing psychological evaluations.

(603) **PSY 6145. Program Evaluation in Psychological Settings. (3G)** Prerequisite: PSY 6102. Models of evaluative research: also techniques, designs and administration of program evaluation. Topics include role conflicts, entry issues, goal setting, research for program planning and implementation and examples of actual program design and evaluation.

(632) **PSY 6150. Introduction to Psychological Treatment. (3G)** Prerequisite: PSY 6151. Major approaches to psychological intervention, including psychodynamic, behavioral, humanistic and cognitive-behavioral systems emphasizing practical therapy considerations, including crisis intervention, client behaviors at various stages of therapy, handling difficult clients and ethical and professional issues.

(630) **PSY 6151. Behavior Disorders. (3G)** Diagnostic systems in current use and the implications of these systems for psychologists; several perspectives on psychological processes, behavior disorders and diagnosis including psychodynamic, behavioral and social models. There will be extensive reading in the literature on theory and research.

(633) **PSY 6155. Community Psychology. (3G)** Research, intervention techniques and settings associated with major approaches in community psychology including the mental health, organizational, ecological and social action models.

(660) **PSY 6171. Industrial/Organizational Psychology. (3G)** Human behavior within organizations. Topics include personnel selection and placement, job analysis, motivation, satisfaction, consumer psychology and ergonomics.

(661) **PSY 6172. Personnel. (3G)** Theories of personnel selection and placement. Includes coverage of EEOC and other government guidelines.

(662) **PSY 6173. Individual Dynamics. (3G)** The individual within the organization. Special emphasis on theories of motivation and job satisfaction.

(663) **PSY 6174. Group Dynamics. (3G)** Group processes, including group formation, group decision-making, leadership and group structure.

(664) **PSY 6175. Organizational Dynamics. (3G)** Organization theories and organizational change methods.

(665) **PSY 6176. Counseling Psychology in Organizations. (3G)** Application of psychology to special problems within the organization, especially the counseling of employees experiencing life problems, for example, retirement, alcoholism, interpersonal conflict.

(640) **PSY 6450. Practicum in Clinical Psychology. (1-3G)** Prerequisite: PSY 6151 and permission of the Department. Experience in clinical assessment and/or psychotherapy with clients at local agencies under supervision from a faculty member on campus. May be repeated for credit with departmental approval.

(641) **PSY 6455. Practicum in Community Psychology. (1-3G)** Prerequisite: permission of the Department. Applications of the principles of community psychology to special problems within an organization or community setting. The project might include, but would not be limited to, consultation, program development, training, community education or program evaluation. May be repeated for credit with departmental approval.

(670) **PSY 6477. Projects in Industrial/Organizational Psychology. (1-3G)** Prerequisite: PSY 6171. A structured practicum experience or research paper in industrial/organizational psychology. May be repeated for credit with departmental approval.

(690) **PSY 6899. Readings and Research in Psychology. (1-4G)** Prerequisite: Permission of instructor and department to be obtained in the semester preceding the semester in which the course is to be taken. Individual study in psychology which may take the form of conducting empirical research or formulating a critique and synthesis of existing research. May be repeated for credit.

(770) **PSY 7999. Thesis. (1-3G)** The thesis is coordinated with the student's interests and practical experience during the second year to allow the development of an area of specialization. Thesis projects can be of three types: 1) An original experiment which will contribute to the psychological literature; 2) A thorough case analysis including literature review and application; 3) The development of a community psychology program or intervention to accomplish an important, well-defined goal. A completed paper and oral presentation are required. May be repeated for credit with departmental approval.

Department of Religious Studies

Chairperson: Associate Professor St. Clair
Professors: Underwood, Witherspoon
Associate Professors: Gestwicki, Meyer, Thomas
Assistant Professor: White

B.A. Degree

A student may satisfy the requirements for a major leading to the B.A. degree in Religious Studies after completing either of the two following programs:

(A) Course program in religious studies: A student who elects this option will be expected to complete a minimum of 30 semester hours, which will normally include the following: 1101, 2101, 2102 and the Senior Seminar (3600), for a total of 12 hours. The 18 hours remaining to be completed for the major are expected to give the student a substantial breadth in religious studies. Within these guidelines, the student will develop the course of study in consultation with his or her adviser. Advising sessions with the entire Department may be arranged by the student and/or adviser to consider special requests or problems pertaining to the nature of an individual student's program.

(B) Interdisciplinary program in religious studies: This option is intended to provide a course of studies which will make maximum use of the interdisciplinary aspects inherent in religious studies. Before the beginning of the junior year but after several courses in religious studies, a student may submit, after consultation with his or her adviser, a proposal for a program of study for the junior and senior years. If the proposal is approved by the Department, the student will satisfy the requirement for a major in Religious Studies by completing the approved program rather than by taking any specified number of religious studies courses. This is not an honors program, and any student may submit a proposal to the Department. A detailed description of this program may be obtained from the office of the Department of Religious Studies.

Minor

A minor in Religious Studies consists of a minimum of 15 hours including REL 1101 and two courses beyond the 2000 level. With the help of an adviser in Religious Studies, the student will select courses in at least two different areas of the discipline. Students are encouraged to take REL 3600, though it is not required.

COURSE DESCRIPTIONS

Courses for Undergraduates

(101) **REL 1101. An Introduction to Religious Studies. (3)** An introduction to the study of the religious dimension of human existence.

(110) **REL 1110. The Long Search. (3)** A survey of the major religions of the world based on the film series *The Long Search.*

(211) **REL 2101. Introduction to Western Religious Thought. (3)** The major religions, myths, symbols, ideas and traditions that have informed the fundamental ways people in the West have seen themselves in the world.

(212) **REL 2102. Introduction to Eastern Religions. (3)** Selected religions of the East such as Islam, Hinduism, Buddhism, Chinese and Japanese Religions. Special emphasis on their world views as expressed in the functional use of myth and symbol in the tradition.

(213) **REL 2104. Old Testament/Hebrew Scriptures. (3)** The Hebrew religious tradition from the perspective of its development in the culture of the ancient Near East.

(214) **REL 2105. New Testament and Christian Origins. (3)** Emergence of Christianity in its cultural context. Analysis of selected early Christian writings in English translation.

(215) **REL 2108. Religion in American Culture. (3)** The role of religion in the shaping of American culture.

(350) **REL 3000. Topics in Religious Studies. (3)** Treatment of a special topic in religious studies. May be repeated for credit as topics vary.

(360) **REL 3010. Major Figure in Religious Studies. (3)** The life and works of a major figure who has contributed to religious studies. May be repeated for credit for different figures.

(344) **REL 3101. Greek Myths and Religions. (3)** The gods and goddesses, heroes and heroines in ancient Greek myths and religions. Greek myth and later Western religions. Polytheism and monotheism. Functions of myth. Contemporary interpretations of Greek myth.

(402) **REL 3104. Hebrew Prophetic Religion. (3)** Prerequisite: REL 2104 or consent of the instructor. The historical development of the prophetic movement from its origins to its culmination in the classical prophets of the eighth to sixth centuries B.C.

(403) **REL 3107. The Psalms and Wisdom Literature of Israel. (3)** Prerequisite: REL 2104 or consent of the instructor. The origin and content of the Psalms and the place of wisdom literature in the development of Hebrew thought.

(327) **REL 3110. Judaism. (3)** The development of Jewish religious thought from the Middle Ages to the present.

(404) **REL 3113. Jesus. (3)** Prerequisite: REL 2105 or consent of the instructor. Jesus and the religion he taught from the point of view of the synoptic gospels.

(405) **REL 3116. Paul. (3)** Prerequisite: REL 2105 or consent of the instructor. The writings of St. Paul. The occasion, purpose and significance of each letter for the emerging Christian community.

(329) **REL 3119. Christianity Through Art and Architecture. (3)** Christian history from the catacombs to the 20th century. Focus on religious expression in pictorial art, architecture and sculpture.

(343) **REL 3122. Western Esoteric Traditions. (3)** Traditions which emphasize that the highest wisdom is found in the inner self; gnosticism, mysticism, hermeticism, grail legends, alchemy.

(341) **REL 3125. Medieval Christianity. (3)** Christianity in the context of the culture of the High Middle Ages (1050-1350 A.D.)

(314) **REL 3131. Islam. (3)** The development of the traditions in Islam. Emphasis on Islamic culture, literature and mysticism.

(340) **REL 3134. Studies in Western Religious Thought. (3)** Selected works of major religious authors in the West.

(330) **REL 3135. Religion in Nineteenth Century America. (3)** Examination of religious thought, practices, and movements in 19th Century America.

(332) **REL 3137. Contemporary Black Religion in America. (3)** Black religion since World War II. Emphasis on the influence of religion and religious leaders in the struggle for a Black humanity.

(339) **REL 3151. Primitive Religions. (3)** Religious conceptions of prehistoric man as found in painting, sculpture, artifacts, burial practices, etc. Two or three selected examples of tribal religion in the modern period.

(311) **REL 3154. Hinduism. (3)** The ancient Vedic traditions and the development of Hinduism. Emphasis on the role of Hinduism in Indian civilization.

(312) **REL 3157. Buddhism. (3)** The historical development of Buddhism with special attention given to its diverse manifestations in South Asia.

(411) **REL 3160. Tibetan Religion. (3)** Prerequisite: REL 2102 or consent of the instructor. The symbols, beliefs and practices of the Tibetan tradition. The fusion of the ancient native religion and Buddhism.

(315) **REL 3163. Visual Mysteries of India. (3)** Prerequisite: REL 2102 or consent of instructor. The visual art of Hindus, Buddhists, Jainas and Muslims in the caves, temples, paintings and sculptures of India.

(313) **REL 3166. Taoism. (3)** Philosophical Taoism as nature mysticism. Comparison with nature mystics in the West.

(406) **REL 3169. Zen Buddhism. (3)** Prerequisite: REL 2102 or consent of the instructor. Buddhist origins in India. Development of the Ch'an (Zen) school in China and Japan. Emphasis on the formative influences of Zen on Japanese art and culture.

(348) **REL 3172. Religion in Asian Literature. (3)** Religious ideas and themes in the literature of the East. Examples chosen from such literary forms as novel, short story, autobiography, drama and poetry.

(301) **REL 3201. The Meaning of Death. (3)** An investigation into the experience of death in the western tradition. Study of selected philosophical, religious, existential, psychological and literary readings with a view of clarifying the conceptual problems involved in our ways of speaking about death. Explorations into the understanding of death as a horizon for understanding life. (Same as PHI 3201.)

(304) **REL 3202. The Limits of Language. (3)** What it means to be a linguistic creature living in a symbolic world.

(305) **REL 3206. Images and Experience. (3)** The relationship between religious experience and images, as manifested privately (dreams, fantasies, ideals) and publicly (religion, myth, art).

(334) **REL 3209. Quest in Literature. (3)** The spiritual dimension of contemporary and traditional literature. Focus may be on an artist, genre (novel, poetry, drama) or theme.

(337) **REL 3212. Films and Identity. (3)** Themes of religious identity alienation, search, discovery, sexuality, death—as reflected in recent American movies and foreign films. Film laboratory required.

(336) **REL 3215. The Artist As Visionary. (3)** The role of visual imagination in the development of religious sensibilities.

(345) **REL 3218. Jung and Religion. (3)** The works of C.G. Jung as they relate to an understanding of religion and religious experience. Emphasis on his interpretations of myths and symbols as they appear in both Western and non-Western religions. His theories of creativity and the arts, religious expressions and quests for meaning.

(346) **REL 3221. Religion and Psychology. (3)** Views of the self in relation to traditional religious views, particularly in the works of such people as Freud, Jung, Brown, Erikson, Skinner.

(333) **REL 3224. Science, Technology and Human Vision. (3)** The relationship of science and religion, the place of the individual in a technological society and the visions of the scientific future.

(460) **REL 3230. Languages of Sacred Texts. (3)** Prerequisite: consent of the instructor (same as FL 350). The language and literature of a particular religious tradition. Aims at a level of proficiency to begin reading the sacred writings of a religion in the original language (Koine Greek, Biblical Hebrew, Classical Chinese, Sanskrit). May be repeated for credit when the subject matter changes.

(342) **REL 3242. Philosophy of Religion. (3)** Prerequisite: PHI 2101 and junior standing (same as PHI 3242.)

(491) **REL 3600. Senior Seminar. (3)** Required of majors in final year of studies. Others may be admitted with consent of instructor.

(490) **REL 3800. Independent Studies. (1 to 3)** Prerequisite: consent of instructor. May be repeated for credit.

Courses for Undergraduates and Graduates

(450) **REL 4000. Topics in Religious Studies. (3)(3G)** Prerequisite: consent of the instructor. May be repeated for credit.

(432) **REL 4101. Religion and Modern Thought. (3)(3G)** The interaction of modern thought and modern religious sensibilities.

Courses for Graduate Students Only

(690) **REL 6800. Directed Studies. (3G)** Prerequisite: consent of the instructor. May be repeated for credit.

Department of Sociology and Anthropology

Chairperson: Associate Professor Rent
Professors: Goodnight, Michalowski
Associate Professors: Bertoli, Bonney, Dubisch, Ferraro, Forrest, Hutchison, Lance
Assistant Professors: Carlton-LaNey, Day, Krol, Latimore, Levy, Majeed, Pearson, Stroud
Lecturer: Reichs
Adjunct Professors: Robicsek, Williams

The Department of Sociology and Anthropology offers academic majors in Anthropology and Sociology and a concentration in Social Work.

Anthropology. Anthropology is the study of humans and their cultures and is organized into four subfields: cultural anthropology, archeology, physical anthropology and linguistics. It focuses upon human cultural heritage and history and upon the biological and evolutionary aspects of humans which relate to cultural development. It emphasizes the comparative study of humans and the cross-cultural analysis of their institutionalized responses to fundamental human needs.

The study of anthropology is relevant for persons whose occupations and endeavors require an understanding of a variety of cultures. It is particularly useful for teachers of students from diverse cultural backgrounds, social workers and persons seeking careers in journalism and communications as well as persons who plan to work in or with foreign countries. It provides competencies needed for employment in such organizations as museums, highway departments (as archeologists), police departments (as physical anthropologists), the park service and the Bureau of Indian Affairs.

Sociology. Sociology is the scientific study of human social life. It focuses upon the forces which organize and structure societies and smaller groups as well as the forces which disorganize and threaten to dissolve them. As a science, sociology applies an objective and systematic method of investigation to identify the patterns and forms of social life and to understand the processes by which they are established and changed.

The study of sociology is attractive to persons seeking a liberal education and immediate employment as well as to persons preparing for further study and professional careers. As a liberal arts program, it enables the student to understand the social context in which he finds himself and the social forces which shape his personality, his actions and his interactions with others. As a pre-professional program it provides a good background for persons entering social work, law, teaching, the ministry, journalism, planning, public relations and personnel services. It also provides analytical skills related to market research and program evaluation in human services, sales, management and other business activities.

Social Work. Social work includes the study and enhancement of human social interaction. It focuses upon the prevention, treatment and control of problems in the social life of individuals, groups and communities. It blends knowledge from the social and behavioral sciences with social work theory and skills in the professional application of the helping relationship.

The study of social work prepares persons for further study and careers in social welfare, including direct social service, family counseling and crisis intervention. It provides an excellent background for careers involving the planning, administration and evaluation of social services. It also provides knowledge and skills utilized by vocational rehabilitation counselors, probation and parole officers, medical and psychiatric social workers and other members of community and industrial social service organizations.

B.A. DEGREE PROGRAMS

Anthropology Major

The undergraduate program in anthropology is designed to respond to the following objectives:

1. To examine society and culture scientifically and to develop an understanding of the research process;

2. To examine human behavior from a cross-cultural perspective in order to reduce ethnocentrism and develop a better perspective on one's culture;
3. To examine the interconnections among the biological, cultural and social bases of human behavior within both contemporary and historical frameworks;
4. To develop an understanding of the interconnections among the various parts of sociocultural systems and their functional implications for change; and
5. To develop an understanding of anthropological inquiry and how it relates to other scientific and humanistic disciplines.

The Anthropology curriculum is designed to familiarize the student with the broad range of anthropological concerns (socio-cultural anthropology, archeology, physical anthropology and anthropological linguistics) and to enable the student to integrate these subfields into a framework for the holistic understanding of human behavior and evolutionary development. Formal course offerings are supplemented with extra-classroom activities involving the application of anthropological theories and methods to contemporary urbanizing society. Students should consult with the Department of Sociology and Anthropology concerning internships and field schools in anthropology and archeology.

Requirements. As a means of achieving the above objectives, students selecting a major in Anthropology must satisfy the following requirements:

1. Completion of 34 semester hours of anthropology, including
   a. ANT 1101, 2141, 2151, 3101 and 3601;
   b. Eighteen semester hours of electives in anthropology including at least six semester hours in cultural anthropology; and
   c. Completion of ANT 3601 with a grade of C or better.
2. Completion of 18 semester hours or related work to be arranged in consultation with the student's adviser and organized around a region, an allied discipline or theme, or minor in another approved discipline.

SUGGESTED CURRICULUM FOR THE B.A. DEGREE IN ANTHROPOLOGY

Freshman Year

Anthropology 1101	3	Anthropology Elective	3
English	3	English	3
Foreign Language or Math	4-3	Foreign Language or Math	4-3
Natural Science	4	Natural Science	4
Humanities	3	Social Science	3
	17-16		17-16

Sophomore Year

Anthropology 2151	3	Anthropology 2141	4
Anthropology Electives	3	Anthropology Electives	3
Foreign Language or Elective	4-3	Foreign Language or Elective	4-3
Humanities	3	Social Science	3
Related Work	3	Related Work	3
	15-16		16-17

Junior Year

Anthropology 3101	3	Anthropology Electives	6
Related Work	3	Related Work	3
Electives	6	Electives	6
	13		15

Senior Year

Anthropology Elective	3	Anthropology 3601	3
Related Work	3	Related Work	3
Electives	9	Electives	9
	15		15

Anthropology Minor

A minor in anthropology is available to all undergraduates except anthropology majors.

Requirements. Completion of 18 hours of anthropology including ANT 1101 and 15 hours of electives with at least one course in each of the subdivisions of anthropology: cultural anthropology, physical anthropology and archealogy. A grade point average of at least 2.0 is required in the 18 hours of anthropology.

Sociology Major

The undergraduate program in sociology is designed to respond to the needs of individuals and society by helping its students meet the following objectives:

1. To understand themselves, each other and the interrelationships between the individual and society;
2. To comprehend the past and present influence of social factors and their implications for the future;
3. To acquire the perspective and skills necessary for acquiring and applying sociological knowledge; and
4. To predict and understand the influence of social factors for the prevention and amelioration of social problems.

The Sociology curriculum is designed to familiarize the student with the questions sociologists ask about social reality, the conceptual and methodological tools they utilize to gain answers to these questions and the existing body of knowledge in the field. It is relatively structured in terms of the number of courses the student is required to take, but it is highly flexible in terms of the freedom to focus upon and become involved in inquiry pertaining to sociological problems of the student's own choosing within each of these courses. Students should consult with the Department of Sociology and Anthropology about internship opportunities in sociology.

Requirements. A major in sociology leading to the B.A. degree consists of (1) a minimum of 32 semester hours of sociology; (2) a core curriculum of SOC 1101, 3153, 4155 and 3156; (3) at least 23 hours at the 3000 and/or 4000 level (but may include 2090); (4) a distribution of elective courses selected from at least three of the following sub areas: *Analysis* (SOC 4154, 4656); *Community* (SOC 4122, 4124, 3125, 4620, 5625); *Organizations* (SOC 4111, 4115, 4112, 4135), *Process* (SOC 3143, 4161, 4263, 2112, 3162); *Problems* (SOC 2171, 3110, 4110, 4172, 4173, 3173); *Family* (SOC 2132, 4632, 4163, 4261) and (5) a minimum of 18 semester hours of related work.

Related work is arranged by the student in consultation with an adviser and may consist of a concentration of courses; (1) within a single discipline; (2) selected from two complementary disciplines; or (3) focused upon a specific topic. Students in the teacher certification program may use the courses in the professional education sequence as their related work.

SUGGESTED CURRICULUM FOR THE B.A. DEGREE IN SOCIOLOGY

Freshman Year

Sociology 1101	3	Sociology Elective	3
English	3	English	3
Math or Foreign Language	3-4	Math, Logic or Foreign Language	3-4
Natural Science	4	Natural Science	4
Humanities	3		
	16-17		16-17

Sophomore Year

Sociology Elective	3	Sociology 3153	3
Social Science	3	Sociology Elective	3
Humanities	3	Related Work	3
Related Work	3	Foreign Language or Electives	4-6
Foreign Language or Elective	3-4		
	15-16		13-15

Junior Year

Sociology Elective 3	Sociology 4155 4
Related Work 3	Related Work 3
Electives 9	Electives 9
15	16

Senior Year

Sociology 3156 4	Sociology Electives 6
Sociology Internship 3-6	Related Work 3
Related Work 3	Electives 6
Electives 3	
13-16	15

Sociology Minor

A minor in sociology is available to all undergraduates except sociology majors.

Requirements. (1) Eighteen semester hours in sociology including Introduction to Sociology and a Theory course (SOC 3153 or 4154 or another approved course); (2) a grade point average of at least 2.0 in the 18 hours.

Concentration in Social Work

The Social Work program is designed primarily to prepare students for beginning professional practice and/or graduate study in social work. The curriculum is designed to familiarize the student with the development and philosophy of social work as a profession and the historical and contemporary contexts of social welfare as an institution. It provides for the acquisition and supervised application of basic knowledge, values, methods and skills of social work practice. Two options are available; students may (1) complete requirements for the Social Work concentration described below or (2) fulfill the related work requirements of sociology, anthropology and various other disciplines through completion of 18 hours of social work courses. Field placement is not available to students who select the latter option.

Requirements. A concentration in social work requires a minimum of 35 semester hours including 21 hours of course work and 14 hours of field placement and seminar. The core courses in the social work concentration build upon each other and are taken in the following sequence: SW 2180, 2181, 3181, 3182, 3183, 3184 and 3280. Students must complete at least 12 hours of the core before they are approved for enrollment in the concurrent field placement sequence: SW 3482, 3683, 3484 and 3685. Concurrent placement requires that the student work two days per week in a social agency for an entire academic year. Students who are approved for block placement must complete all of the core courses before beginning placement. Block placement requires that students spend four and one-half days a week in an agency for one semester.

SUGGESTED SEQUENCE FOR THE SOCIAL WORK CONCENTRATION WITH CONCURRENT FIELD PLACEMENT

For Students Entering the Program as Sophomores:

Sophomore Year

SW 2180 3	SW 2181 3

Junior Year

SW 3183 3	SW 3182 3
SW 3181 3	*SW 3184 3

Senior Year

SW 3482 6	SW 3280 3
SW 3683 1	SW 3484 6
	SW 3685 1

**SW 3184 may be taken during the semester listed or any subsequent semester.*

***Students considering block field placement must consult their ocodemic advisers to develop the necessory sequential scheduling.*

MASTER OF ARTS DEGREE IN SOCIOLOGY

The purpose of the Master of Arts degree in sociology is to provide students with the theoretical and methodological skills necessary to undertake systems-level analysis of contemporary social issues and problems. The program is designed to accommodate both full-time and part-time graduate students. Courses are rotated through the evening offerings to serve students who are currently employed and wish to enhance job-related analytical and research skills.

Students may choose a concentration in either Applied Social Research or General Sociology. The concentration in Applied Social Research is designed to meet the needs of students seeking master's level research skills as preparation for entering or achieving mid-career development in occupations requiring social research skills. The concentration in General Sociology provides a broad-based master's level education in sociology for students preparing for further graduate study, high school issues and social problems. A thesis is required for completion of either concentration.

In addition to taking traditional classroom courses, students can tailor their curriculum in accordance with specific areas of interest through individualized tutorials. These tutorials will involve directed reading and/or research in an area of substantive interest supervised on a one-to-one basis by a faculty member with a specialization in that area.

DEGREE REQUIREMENTS

Both concentrations require 36 semester hours of course work, comprising nine semester hours of common core courses, 21 semester hours in either the Applied Social Research or the General Sociology concentration, and six semester hours of thesis credit. The 21 semester hours in each concentration includes six semester hours in required courses specific to that concentration. Of the total 36 required semester hours, 27 must be taken in courses open only to graduate students. Students may transfer up to six semester hours of graduate work for which the applicant received a grade of B or better from another accredited institution or related UNCC program.

Core Courses: The objective of the required core courses is to provide all students with a solid grounding in the theory and methods of sociological inquiry. The core curriculum common to all masters of sociology candidates consists of:

SOC 6651: CONTINUITY AND CHANGE (3)
SOC 6652: ISSUES IN SOCIAL RESEARCH (3)
SOC 6653: ADVANCED QUANTITATIVE ANALYSIS (3)

Applied Social Research: The applied social research concentration further develops research skills with particular attention to the skill necessary in non-academic settings, and enables the student to apply these skills to a particular area of specialization such as health care delivery systems, aging, family, legal institutions, labor issues or other topics of interest. Students in the applied social research concentration must complete:

SOC 6615: DILEMMAS IN ORGANIZATION (3)
SOC 6617: DATA UTILIZATION (3)

The remaining 21 hours of the concentration will be devoted to course work in one or more substantive areas of applied research and will include a minimum of six semester hours each in:

SOC 6895: TUTORIAL IN SOCIOLOGY (1-4; may be repeated for credit)
SOC 6996: THESIS (1-6)

General Sociology: The concentration in General Sociology develops a comprehensive overview of the substantive areas of sociology. Students in this concentration must complete:

SOC 6614: SELF AND SOCIETY (3)
SOC 6616: STRATIFICATION AND INEQUALITY (3)

The remaining 21 semester hours of the General Sociology concentration will consist of course work in the various substantive areas of sociology including a minimum of six semester hours each in:

SOC 6895: TUTORIAL IN SOCIOLOGY (1-4; can be repeated for credit)
SOC 6996: THESIS (1-6)

ADMISSION REQUIREMENTS

Candidates for admission to the Master of Arts in Sociology degree program must meet all requirements for admission to the Graduate School of The University of North Carolina at Charlotte. In addition, applicants should have:

1. an overall undergraduate grade point average of 3.0 or better on a 4.0 scale;
2. a score of 50th percentile or better on the aptitude portion of the Graduate Record Examination or Miller Analogies Test;
3. completed a minimum of 18 hours of undergraduate course work in social sciences.

Applicants who fall below one of these criteria and otherwise appear as promising candidates may be admitted on a provisional status by recommendation of the Graduate Committee of the Department.

COURSE DESCRIPTIONS

ANTHROPOLOGY

Courses for Undergraduates

(101) **ANT 1101. Introduction to Anthropology. (3)** Biological and cultural evolution; archeology; language and culture; comparative study of human social institutions such as kinship, subsistence patterns, religion, politics; methods and theories. Prerequisite for all upper level courses in anthropology.

(210) **ANT 2010. Topics in Ethnography. (3)** Prerequisite: ANT 1101. Supervised investigation of ethnographic regions of the world. May be repeated for credit as the topics vary. Examples: Hunters and Gatherers, Plains Indians, People of Modern Greece, Peoples of The Mediterranean.

(250) **ANT 2050. Topics in Archeology. (3)** Prerequisite: ANT 1101. Specialized topics in archeology. May be repeated for credit as topics vary. Examples: Historic Archeology, Old World Archeology.

(290) **ANT 2090. Topics in Anthropology. (1-3)** Prerequisite: ANT 1101. Specialized topics in anthropology. May be repeated for credit as topics vary.

(211) **ANT 2111. Peoples of Africa. (3)** Prerequisite: ANT 1101. Ethnic and linguistic diversity in Sub-Saharan Africa; ecology and culture; patterns of continuity and change in kinship, marriage, economy, social control, stratification, and religion.

(212) **ANT 2112. North American Indians. (3)** Prerequisite: ANT 1101 or consent of the instructor. Survey of the native peoples of America; culture at the time of European contact; major historical events and relationships; contemporary issues in Indian affairs.

(213) **ANT 2113. Peasants and States. (3)** Prerequisite: ANT 1101. Evolution of peasantry; social and cultural characteristics of past and present peasant societies; modernization, peasant revolts, and the position of peasants in the contemporary world economic system; analysis of selected peasant societies.

(221) **ANT 2121. Comparative Family Systems. (3)** Prerequisite: ANT 1101. Cross-cultural survey of the origins and forms of the human family and interrelationships with other cultural institutions; role of the family in kinship, marriage, childrearing, sex roles, economics, political organization and religion.

(222) **ANT 2122. Beliefs, Symbols and Rituals. (3)** Prerequisite: ANT 1101. Structure and content of systems of belief and ritual; role in social life; analysis of religion, myth, magic, witchcraft, symbol systems, cult movements and religious change.

(224) **ANT 2124. Language and Culture. (3)** Prerequisite: ANT 1101. Examination of language as part of culture; relationship between language and other cultural features; historical linguistics, phonetics and phonemics, componential analysis, dialects, kinesics and body language, situational analysis of language.

(225) **ANT 2125. Urban Anthropology. (3)** Prerequisite: ANT 1101. Cross-cultural analysis of urban life; rise of early cities; rural-urban differences; migration; ethnicity, urban poverty; effects of urban life on kinship systems; modernization.

(241) **ANT 2141. Principles of Physical Anthropology. (4)** Evolutionary theory; primates; primate and human evolution; population genetics; human variation, nutrition, disease; osteology.

(242) **ANT 2142. Primate Behavior. (3)** Prerequisite: ANT 1101. Primate evolution, taxonomy, ecology, social behavior, reproductive strategies; monkeys, apes and human beings; communication, aggression, mother-infant bonding, sociobiology; fieldwork, conservation.

(245) **ANT 2145. Evolution of Human Sexual Behavior. (3)** Prerequisite: ANT 1101. Sexual selection; reproductive strategies; parental investment; physiology; human evolution; gender differences; sexual practices cross-culturally; sociobiology.

(251) **ANT 2151. General Archeology. (3)** Prerequisite: ANT 1101. Archeological method and theory; trends in human cultural development; important archeological sites and cultures from old and new worlds.

(252) **ANT 2152. New World Archeology. (3)** Prerequisite: ANT 1101. Pre-history of North and South America; Paleoindians, Eastern United States, Southwest, Mexico; archeological methods and theory.

(301) **ANT 3101. Foundations of Anthropological Theory. (3)** Prerequisite: ANT 1101 and junior standing. History of anthropological theory; the anthropological perspective in the social sciences, examinations of current theoretical and methodological issues in anthropology.

(311) **ANT 3111. Culture Change and Applied Anthropology. (3)** Prerequisite: ANT 1101. Cultural dynamics; agents and conditions promoting growth; application of anthropological theories and methods to domestic and foreign programs of sociocultural change.

(322) **ANT 3122. Culture, Health and Disease. (3)** Prerequisite: ANT 1101 or consent of the Department. Relationship between cultural beliefs and practices and patterns of health and illness in human populations; role of disease in human evolution, ecology and epidemiology, nutrition, cultural systems of healing, roles of patient and healer, culture and emotional states, role of religion, and magic in healing.

ANT 3140. Forensic Anthropology. (3) Prerequisite: ANT 1101. Related classical techniques of comparative human anatomy and physical anthropology to the modern problems in the identification of human remains. Surveys anthropological methods used to recover, recognize, interpret and identify human remains in paleontology, archeology, criminal and mass disaster investigations; includes field exercise in crime scene recovery coordinated with relevant county and city agencies.

(352) **ANT 3152. Early Civilizations. (3)** Prerequisite: ANT 1101. Great civilizations of Old and New Worlds; Mesopotamia, India, Greece, Africa, Egypt, China, Mexico, Peru; theories of cultural evolution; beginnings of complex societies; archeological theory and method, environment and ecology of first civilizations.

(353) **ANT 3453. Field Project in Archeology. (4)** Prerequisite: ANT 1101. Examination of and practical experience in archeological techniques. With instructor's guidance and supervision, students will conduct field research on an historic or prehistoric archeological site. Research may include field reconnaissance, excavation, mapping, systematic description and analysis of cultural material, and/or other techniques appropriate to the site and research problem. May be repeated for credit as projects vary. Up to eight hours of credit may be applied toward the Anthropology major.

(480) **ANT 3480. Internship in Anthropology. (3-6)** Prerequisite: consent of the Department. Research and/or in-service training experience in cooperating community organizations. Content of internship based upon a contractual agreement among the student, Department and community organization. Amount of credit determined by the nature and extent of the internship assignment. May be repeated for credit up to a maximum of six semester hours. Offered only on a Pass/No Credit basis.

(401) **ANT 3601. Seminar in General Anthropology. (3)** Prerequisite: ANT 3101 and senior standing. Synthesis and integration of subfields of anthropology with emphasis on individual research projects stressing orientation to the discipline, its uses and future.

(495) **ANT 3895. Directed Individual Study. (1-4)** Prerequisite: ANT 1101 and consent of the Department. Supervised investigation of problems and areas in anthropology. May be repeated for credit.

Courses for Advanced Undergraduates and Graduates

(690) **ANT 4090. Topics in Anthropology. (1-3) (1-3G)** Prerequisite: ANT 1101. Examination of specialized topics in anthropology. May be repeated for credit as topics vary. Examples: Human Ecological Systems, Women and Culture, Primitive Arts and Crafts.

(420) **ANT 4120. Intercultural Communications. (3) (3G)** Prerequisite: ANT 1101. Learning to cope with cultural differences; contrasting value systems; cross-cultural and communication styles; nonverbal communication; cultural relativity; ethnocentricism; culture and perception; cultural schock.

(321) **ANT 4121. Culture and Personality. (3) (3G)** Prerequisite: ANT 1101 or consent of Department. Anthropological contributions to theories of personality formation; data on tribal and national characteristics, patterns of childrearing, culturally derived aspects of humman behavior, deviancy and personal integration with the cultural milieu.

Courses for Graduate Students Only

ANT 6112. American Indian Studies Through Curriculum Development. (3G) Cultural descriptions of American Indians by culture area; contact relationships and policies; issues in contemporary Indian affairs presented through lectures, audio visual materials, workshop activities and field trips. Emphasis on study of American Indian cultures through development of curriculums materials. Designed primarily for public school teachers.

SOCIAL WORK

Courses for Undergraduates

(280) **SW 2180. The Field of Social Work. (3)** Development and philosophy of social work as a profession; personal and societal needs; methods and organizational arrangements; roles and tasks of social workers.

(281) **SW 2181. Human Behavior and the Social Environment. (3)** Interaction between the individual, family, community and larger social system; individual problem-solving; delivery of social services; impact of racism, sexism, poverty, ethnicity, and social class.

(490) **SW 3090. Topics in Social Work. (1-3)** Specialized topics in social work. May be repeated for credit as topics vary. (A listing and brief description of specific courses offered each term is available from the departmental office.)

(381) **SW 3181. Social Work Process. (3)** Prerequisite: SW 2180. Dynamics of the helping process; basic knowledge, value, skills and methods underlying the profession of social work.

(382) **SW 3182. Social Work Methods. (3)** Prerequisite: SW 3181. Concepts, theories, principles and methods of intervention used in social work practice.

(383) **SW 3183. Foundations of Social Welfare. (3)** Prerequisite: SW 2180. Foundations of social welfare; issues, processes, values and conflicts which influence social welfare programming.

(384) **SW 3184. Transitional Stages Through Life: A Social Work Perspective. (3)** Prerequisite: SW 2180. Transitional and developmental patterns of the individual.

(480) **SW 3280. Social Welfare Policy. (3)** Prerequisite: SW 2180. Nature and development of social welfare policy implications of policy for program design and service delivery; role of the social worker in developing and implementing social welfare policies.

(482) **SW 3482. Social Work Field Placement I. (6)** Prerequisite: SW 3182 and consent of the Department; corequisite: SW 3683. Directed field experience under professional supervision in selected community agencies. Offered only on a *Pass/No Credit* basis.

(484) **SW 3484. Social Work Field Placement II. (6)** Prerequisite: SW 3482; corequisite: SW 3685. A continuation of SW 3482. Offered only on a *Pass/No Credit* basis.

(483) **SW 3683. Social Work Field Placement Seminar I. (1)** Corequisite: SW 3482. Analysis and discussion of student field experience.

(485) **SW 3685. Social Work Field Placement Seminar II. (1)** Corequisite: SW 3484. A continuation of SW 3683.

(495) **SW 3895. Directed Individual Study. (1-4)** Prerequisite: consent of the Department. Supervised investigation of a special problem. May be repeated for credit.

SOCIOLOGY

Courses for Undergraduates

(151) **SOC 1101. Introduction to Sociology. (3)** The sociological perspective and process; fundamental concepts, principles and procedures.

(290) **SOC 2090. Topics in Sociology. (1-3)** Prerequisite: SOC 1101. Examination of specialized topics. May be repeated for credit as topics vary.

(212) **SOC 2112. Popular Culture. (3)** Analysis of popularforms of everyday life in America: fashions, fads, entertainment trends, advertising, television programming, music, myths, stereotypes and icons of mass-mediated culture.

(232) **SOC 2132. Marriage and the Family. (3)** Prerequisite: SOC 1101. Cross-cultural examination of family; socialization and sex roles; love, dating, and mate selection; communication; sexuality; power and decision making; parenthood; childlessness; conflict and violence; divorce, remarriage and stepfamilies; alternate lifestyles; and future family.

(271) **SOC 2171. Social Problems. (3)** Prerequisite: SOC 1101. Contemporary social problems and consequences for American society.

(310) **SOC 3110. American Minority Groups. (3)** Prerequisite: SOC 1101. Relations between dominant and minority groups; the establishment, maintenance and decline of dominance involving racial, ethnic and religious minorities.

(325) **SOC 3125. Urban Sociology. (3)** Prerequisite: SOC 1101 or consent of Department. Cross-cultural analysis of urban development, organization, ecology, demographic composition, social psychological attributes and social problems.

(343) **SOC 3143. Social Movements. (3)** Prerequisite: SOC 1101. Analysis of collective behavior, ideology, development and organizatons of movements seeking or resisting change.

(353) **SOC 3153. Evolution of Sociological Theory. (3)** Prerequisite: SOC 1101. Origins and evolution of fundamental sociological concepts and theories.

(356) **SOC 3156. Quantitative Analysis. (4)** Prerequisite: SOC 4155 or consent of the Department. Concepts and procedures of sociological analysis; data processing; measurement theory; quantitative models of analysis. Three hours of lecture-discussion and two hours of laboratory each week.

(362) **SOC 3162. Social Control. (3)** Prerequisite: SOC 1101. Relationship of social structure and social norms to conforming and deviant behavior; economic and political power, public opinion, law, ideology, political propoganda, organizational climate, and religion as types of social control.

(473) **SOC 3173. Criminology. (3)** Prerequisite: SOC 1101. Nature and historical development of crime and political-economic organization of crime, criminal law, theories of crime causation.

(480) **SOC 3480. Internship in Sociology. (3-6)** Prerequisite: consent of the Department. Research and/or in-service training for selected students in cooperating community organizations. Specified content based upon a contract between student, department and community organization. May be repeated for credit up to six semester hours. Offered only on a *Pass/No Credit* basis.

Courses for Advanced Undergraduates and Graduate Students

(490) **SOC 4090. Topics in Sociology. (1-3)(1-3G)** Prerequisite: SOC 1101. Examination of specialized sociological topics. May be repeated for credit. (A listing and brief description of specific courses offered each term is available from the departmental office.) Examples: corporate crime, collective behavior, divorce, family violence, mental health.

(410) **SOC 4110. Sociology of Aging. (3)(3G)** Prerequisite: SOC 1101 or consent of department. Changing characteristics, aspirations, and needs of older adults and their impact upon such institutions as the family, work, the economy, politics, education, and health care; emphasis on sociological theories of aging, contemporary research, and the analysis of specific aging policies and programs. Graduate students will be required to do additional reading and/or research and, if time permits, to present their materials to the other class members.

(311) **SOC 4111. Social Inequality. (3)(3G)** Prerequisite: SOC 1101. Distribution of power, privilege and prestige; correlates and consequences of inequality; national and international comparisons.

(412) **SOC 4112. Industrial Sociology. (3)(3G)** Prerequisite: SOC 1101 or consent of department. The emergence of industrialization; its technology and impact on work, community and family; problems and contemporary trends in selected industrial societies. Additional work will be required of all graduate students.

(315) **SOC 4115. Complex Organizations. (3)(3G)** Prerequisite: SOC 1101. Structure and dynamics of complex organizations; bureaucracy; mechanisms of change.

(322) **SOC 4122. Population and Society. (3)(3G)** Prerequisite: SOC 1101. International trends in population change, composition, distribution, fertility, mortality, migration; basic demographic measures and data sources for community analysis.

(324) **SOC 4124. Sociology of the Community. (3) (3G)** Prerequisite: SOC 1101. Concepts and methods of community analysis of planned and unplanned community change.

SOC 4130. Sociology of Health and Illness. (3)(3G) Prerequisite: SOC 1101 or consent of department. Impact of social factors on health and illness; health care occupations; organization and financing of health care; international comparisons; prospects for the future. Graduate students required to do additional readings and/or research.

(435) **SOC 4135. Sociology of Education. (3)(3G)** Prerequisite: SOC 1101 or consent of the Department. Educational institution; the school class as a social system, the school as a social environment and a complex organization.

(354) **SOC 4154. Theory Construction. (3)(3G)** Prerequisite: SOC 3153 or consent of Department. Elements and process of theory construction; contemporary social theories.

(355) **SOC 4155. Sociological Research Methods. (4)(4G)** Prerequisite: SOC 3153 or consent of Department. Formulation of research problems; research designs; social measurement; sampling; collection, analysis and interpretation of data.

(361) **SOC 4161. Socialization and Society. (3)(3G)** Prerequisite: SOC 1101. Analysis and process of socialization, social interaction, sociocultural dimension of personality.

(463) **SOC 4163. Sociology of Sex Roles. (3)(3G)** Prerequisite: SOC 1101 or consent of the Department. Changing sex role behavior, socialization into sex roles, institutional sexism ; alternative sex role models.

(372) **SOC 4172. Sociology of Deviant Behavior. (3)(3G)** Prerequisite: SOC 1101. Forms; causes; consequences; control.

(373) **SOC 4173. Juvenile Delinquency. (3)(3G)** Prerequisite: SOC 1101 or consent of department. Youth crime and deviance; theories of causation; systems of control.

(461) **SOC 4261. Human Sexuality. (3)(3G)** Prerequisite: SOC 1101 or consent of Department. Human sexuality research; teenage pregnancy; birth control; sex education; sexual fantasy; pornography; homosexuality and bisexuality; sexual communication; heterosexual alternatives.

(534) **SOC 4631. Seminar in Family Violence. (3) (3G)** Family violence in the context of a changing society and family system. Principal foci: child abuse and wifebeating; related concerns include violence between siblings, violence by children toward the parental generation, and violence by wives against husbands. Investigation of these topics in terms of socio-cultural influences and the internal dynamics of families. Additional work is required by graduate students.

(363) **SOC 4263. Sociology of Small Groups. (3)(3G)** Prerequisite: SOC 1101 or consent of Department. Systematic analysis and application of theoretical and empirical research pertaining to small groups.

(420) **SOC 4620. Seminar in the Sociology of Housing. (3)(3G)** Prerequisite: SOC 1101 or consent of Department. Housing as a social and physical variable; relationships to social problems; social policy, community development, social stratification, life cycle, racial-ethnic relations, individuals and neighborhoods, tenant-landlord relations and future alternatives.

(534) **SOC 4631. Seminar in Family Violence. (3)(3G)** Family violence in the context of a changing society and family system. Principal foci: child abuse and wife-beating; related concerns include violence between siblings, violence by children toward the parental generation, and violence by wives against husbands. Investigation of these topics in terms of socio-cultural influences and the internal dynamics of families. Additional work is required by graduate students.

(432) **SOC 4632. Changing American Family. (3)(3G)** Prerequisite: SOC 1101, 2132, or consent of Department. Family theories; family system in relation to other social systems; integration of marital, parental and occupational roles in context of changing socio-economic influences; traditional versus contemporary family roles; breakdown in stable family functioning.

(456) **SOC 4656. Seminar in Sociological Research. (3)(3G)** Prerequisite: completion of all other required core courses. Development, analysis, and presentation of independent research project. Review of other research projects.

(495) **SOC 4895. Directed Individual Study. (1-4) (1-4G)** Prerequisite: consent of the Department. Supervised investigation of a special problem. May be repeated for credit.

(510) **SOC 5110. Intergroup Relations. (3) (3G)** Prerequisite: SOC 1101 or consent of Department. Social and social-psychological determinants of intergroups relations; labor-management relations, race relations, social classes, ethnic, national and religious groups.

(525) **SOC 5625. Seminar in Urban Sociology. (3) (3G)** Prerequisite: SOC 1101 or consent of Department. Development and change of urban societies utilizing cross-cultural comparisons of social organization, ecology, demographic composition, social psychological attributes and social problems.

Courses for Graduate Students Only

SOC 6614. Self and Society. (3G) Examination of theoretical constructs and substantive concerns relevant to the socialization process; comparison of symbolic interactionism, ethnomethodology, phenomenology; emphasis on social construction of reality in various "social worlds" (deviant, work, family).

SOC 6615. Dilemmas in Organizations. (3G) Organizational theory and research focused on organizational design intervention in organizations, and productivity.

SOC 6616. Stratification and Inequality. (3G) Causes, processes and consequences of diverse types of societal inequality; measurement of inequality; assumptions, mechanisms and impact of government policy.

SOC 6617. Data Utilization. (3G) Methodological and statistical strategies for applied sociological research within organizational settings; selecting the best strategies consistent with budgetary, manpower and organizational constraints, interpreting and communicating research results in ways understandable to and useful for organizational decision-makers.

SOC 6651. Continuity and Change. (3G) Analysis of contemporary social theories, with emphasis on their implications for planned change.

SOC 6652. Issues in Social Research. (3G) Examination of epistemology of social research; assumptions and methods of specific research strategies; ethical and policy issues of applied and academic research.

SOC 6653. Advanced Quantitative Analysis. (3G) Prerequisites: Six hours in Introductory Statistics and/or Research Methods. Contemporary techniques of data analysis, management and processing applied to specific topics; measurement models, data reduction strategies and multivariate procedures.

SOC 6895. Tutorial in Sociology. (1-4G) Prerequisite: permission of instructor. Directed reading and/or research; develop expertise in substantive area. May be repeated for credit.

SOC 6996. Thesis (1-6G) Prerequisite: completion of all other course work and admission to candidacy by graduate committee. Applied, academic, or theoretical research project; defended before graduate faculty. May be repeated for credit up to six hours.

Speech

Assistant Professor: Hill
Lecturer: Bokeno, Ross

(For further information about Speech courses, consult the English Department.)

Minor in Speech Communication

A minor in Speech Communication consists of 18 semester hours including Introductory Speech (SPH 1101) and at least two but no more than four semester hours in either Debate Practicum (SPH 3403) or Radio Practicum (SPH 2491). A minimum of six hours at the 3000 level or above is required. The student must achieve a minimum 2.2 grade point average in all Speech Communication courses.

COURSE DESCRIPTIONS

(101) **SPH 1101. Introductory Speech. (3)** For students who want to upgrade their oral communication skills. Opportunity to study theory and to practice for improvement is offered in the areas of voice and articulation, interpersonal communication, small group communication, and public speaking. Special emphasis on message preparation and on delivery before an audience.

(201) **SPH 2101. Advanced Public Speaking. (3)** Prerequisite: SPH 1101 or permission of the instructor. Theory and practice of speaking in public. Research, composition, and delivery of various types of speeches and presentations.

(203) **SPH 2103. Argumentation. (3)** Introduction to the theory and skills of basic argumentation. Includes research techniques, evidence, reasoning, argument construction, delivery skills and ethics. The aim of this course is not only to aid students in their preparation for careers but to enable them to be better consumers of rhetoric on a day-to-day basis as well.

(205) **SPH 2105. Small Group Communication. (3)** Principles of discussion and deliberation in small groups. Practice in organizing, leading and participating in various forms of group communication. Emphasis on problem solving and leadership skills.

(291) **SPH 2491. WFAE Radio Practicum. (2 or 3)** Prerequisite: SPH 1101 or its equivalent *and* permission of WFAE's station manager. On-the-air announcing, board operations, and production work at public radio station, WFAE. Pass/No Credit grading only. No more than six semester hours of SPH 2491 may be used toward degree requirements. (Credit will be given only for work done while the student is registered for the course.)

(301) **SPH 3101. Persuasion. (3)** Prerequisite: SPH 1101. Emphasis on the theoretical development of the process of persuasion with application to practical settings. Such topics as theories of attitude modification and development, source credibility, audience analysis, and development of persuasive appeals are discussed.

(303) **SPH 3403. Debate Practicum (2)** Prerequisite: SPH 2103 or its equivalent *and* permission of the instructor. Application of debate principles and practices as a member of the UNCC Debate Team. (A student may receive no more than 8 semester hours for this course.)

(380) **SPH 3880. Independent Study. (1-3)** Prerequisite: SPH 1101 and permission of Director and Chair. Area of study beyond the scope of current offerings to be devised by student and faculty member. May be repeated for additional credit with approval of the Director of the Speech Program and the Chair of the English Department.

Department of Visual Arts

Chairperson: Associate Professor Byrum
Professors: Anderson, Spence
Associate Professors: Bringle, Hill, Kampen, Mackillop, Strawn
Assistant Professors: Tite, Tweedy

The Bachelor of Creative Arts degree (BCA) is awarded to students who have fulfilled the program of study for the visual arts.

The minimum residence requirement for a Bachelor of Creative Arts degree at the University of North Carolina at Charlotte specifies that a student must earn the last 30 semester hours of credit at the University. Because of the unique nature of the program, students should expect to spend at least four semesters as a Visual Arts student prior to graduation.

The visual arts curriculum emphasizes painting, sculpture, photography, ceramics, printmaking, communication arts, weaving, art history and art education. Students seeking certification in addition to the BCA degree should declare this intent to the certification liaison person by the first semester of his/her sophomore year. A later decision to seek certification along with the BCA degree may result in a graduation date delayed by one or more semesters.

The Visual Arts program is structured upon a number of premises which, in turn, form the unique goals of the program. These premises follow:

1. that the highest priority of an undergraduate university program in the arts should be to develop within its students the ability to identify artistic problems (or to articulate needs) and to solve them (or to structure experiences leading toward their resolution);

2. that one accumulates a wide range of data and moves toward varied experiences in response to a specific need or problem;

3. that a university program focused through the arts should lead its students to an awareness of the interrelatedness of all forms of knowledge and of the shared elements of the creative process, and should provide the opportunity to participate regularly and meaningfully in that creative process.

The Visual Arts program is characterized by the student's ever increasing responsibility to organize and implement more significant portions of the individual curriculum and to demonstrate personal accountability.

The programs may be used to address the needs of students working toward the goals of becoming exhibiting artists, art teachers or scholars generally educated in the arts.

Visual Arts Core

The Visual Arts Core helps students develop the attitudes, conceptual awareness, creative methods, and technical skills basic to the visual arts through investigation of the perceptual, conceptual, and physical elements employed in the arts. In the first four semesters, students take Artistic Perception, Two Dimensional Design, Three Dimensional Design, Drawing I, Drawing II, Figure Study or Concepts in Form and Structure, and Introduction to Art History. Students must complete this Core plus Sophomore Individual Project and pass the Sophomore Review to proceed with Junior level course work.

Individual Projects

The central feature of the BCA degree program in Visual Arts is a block of courses called Individual Projects. With close faculty supervision, students devise projects which will meet their own artistic and educational objectives.

The purpose of Individual Projects is to provide a structure to assist students in learning to be independent, creative artists within a university context. A typical project requires a student to create his/her own original, finished art. In addition to pursuing their own artistic development, students are encouraged to explore relationships between the arts and other academic fields of knowledge (track "B" courses).

The project course block begins in the Sophomore year, once the Core Program is completed, and continues through the Senior year. Students prepare project proposals with faculty guidance, work according to a schedule they set themselves during the semester, and submit work for evaluation at the end. Individual Projects provide a realistic setting for students to explore personal directions in the arts and to cultivate a variety of independent problem-solving skills.

ADVISORY SYSTEM

The new student (freshman and transfer) will be assigned an adviser from the department. In addition to the meetings required for preregistration, the student and the adviser will meet informally throughout the semester.

Other majors will be advised by the individual faculty member under whom they have registered for the individual project. Each student will meet weekly with his/her group and the adviser for the purpose of reviewing and discussing project work.

REVIEW PROCEDURES

Second Year Screening. A board of at least three faculty members will review the student's progress near the end of his/her fourth semester. By this time the student is expected to have demonstrated, minimally:

A. an understanding of the problem-solving approach to education and a demonstration of his/her ability to make this understanding useful in the practice of art. Evidence of this ability will include the successful completion of CA 1101 and the following CAA courses: 1201, 1202, 1203, 1204, 1205 or 1206, 2601.

B. evidence of steady growth in skills requisite to potentially successful involvement in art. The student will present finished works, work-in-progress, portfolios, resumes, research papers, documentation, etc., appropriate to satisfy the review criteria.

The review board will inform the student in writing whether he/she scored a Pass With Distinction, Pass, Pass With Reservation, or Non-Passing (additional course work necessary). With the identification of strengths and weaknesses, the board assists the student in preparing for their educational goals. When a student receives a "Pass With Distinction," the board may recommend the student enter the Honors Program.

Transfer Student Screening

Transfer students who have completed a minimum of 60 semester credits which include an equivalent to the 18 credit hours UNCC Art Core plus two introduction media courses may request a review for the purpose of waiving the second Junior Individual Project. CAA 2601 Sophomore Individual Project and CAA 3601 Junior Individual Project must be completed before the review is requested.

CURRICULUM OUTLINE
FOR THE
BACHELOR OF CREATIVE ARTS DEGREE
WITH AN EMPHASIS IN
VISUAL ARTS

Freshman Year

English 1101 3	English 1102 3
CAA 1203 Drawing I 3	CAA 1204 Drawing II 3
CA 1101 Percep. Interact & Prob 3	CAA 1202 Three-Dimensional Design 3
CAA 1201 Two-Dimensional Design 3	CAA 1102 Intro to Art History 3
CAA Visual Arts Elective 3	CAA Visual Arts Elective 3
15	15

Sophomore Year

CAA 2601 Soph. Indiv. Project 3	Academic Elective "A" 3
Academic Track "B" 3	CAA Art History Elective 3
CAA 1205 Figure Study 3	CAA Visual Arts Elective 3
CAA Art History Elective 3	CAA Visual Arts Elective 3
CAA Visual Arts Elective 3	Elective 3
15	15

Junior Year

CAA 3601 Jr. Indiv. Project 3	CAA 3602 Jr. Indiv. Project 3
Academic Track "B" 3	Academic Track "B" 3
CAA Visual Arts Elective 3	CAA Visual Arts Elective 3
Academic Elective "A" 3	Academic Elective 3
Elective 3	Elective 3
15	15

Senior Year

CAA 3691 Senior Indiv. Project 6	CAA 3692 Senior Indiv. Project 6
Academic Track "B" 3	Academic Track "B" 3
CAA Visual Arts Elective 3	CA 3692 Senior Seminar 3
Academic Elective 3	Academic Elective 3
15	15

Course Identifications for Visual Arts Majors

CA: Courses required of Visual Arts and Performing Arts Majors.

CAA: Visual Arts Courses.

Academic Elective "A": Courses outside the Department of Visual Arts which extend the understanding of problem solving. Suggested courses include: Math, Foreign Language, Natural Science, Social Science.

Academic Elective "B": Courses outside the Department of Visual Arts which relate to the subject of the individual project or to the processes used by the student in developing the project.

Academic Elective: Courses outside the Department of Visual Arts which complete the 36 credit hour general education requirement for majors. Suggest courses: Humanities.

Elective: Courses which contribute to the academic goals of the students. Course selections must be endorsed by the department advisor for majors.

COURSE DESCRIPTIONS
CREATIVE ARTS (CA)

(101) **CA 1101. Perception, Interaction and Problem Solving I. (3)** Theory and exercises in artistic problem identification and resolution. Required for creative arts majors only.

(403) **CA 3692. Senior Seminar. (3)** Consideration of the interrelatedness of the arts with all knowledge. Majors only.

ART (CAA)

(170) **CAA 1101. Understanding the Visual Arts. (3)** Introduction to the appreciation of art through slide lectures concerning a brief chronological history of art, the elements of design, and general concepts of art. For non-majors and majors without prior art training.

(220) **CAA 1102. Introduction to Art. History. (3)** History of art from its origins in paleolithic cave painting to the present day. Identification of major art works and style movements. Emphasis on the history of the Visual Arts and related cultural events.

(271) **CAA 1104. Issues in the Arts. (3)** An examination, discussion and study of major issues in the arts with special emphasis on issues that face the artist in our contemporary society, with slides and topical discussions.

(272) **CAA 1105. Comparative Art: Western/Non-Western. (3)** Comparison of art theory and aesthetics in Western and non-Western culture, with slides and topical discussions.

(273) **CAA 1106. Comparative Art: European Art Through 19th Century. (3)** Comparison of art theory and aesthetics in European Art through the 19th century, with slides and topical discussions.

(274) **CAA 1107. Comparative Art: 20th century Art, American and European. (3)** Comparison of art theory and aesthetics in 20th century art, American and European, with slides and topical discussions.

(171) **CAA 1201. Two-Dimensional Design. (3)** Emphasis on the two dimensional surface and its structural possibilities (i.e. graphics, photography, painting); elements of plastic expression related to increased complexity of space and form. Priority for majors only. Six contact hours.

(172) **CAA 1202. Three-Dimensional Design. (3)** Exploration of materials, tools, and methodology as they relate to form and space in three dimension. Priority for majors. Six contact hours.

(175) **CAA 1203. Drawing I. (3)** Introduction to drawing involving skills and theory including perspective, proportion, and rendering in a variety of media and techniques. Priority for majors. Six contact hours.

(173) **CAA 1204. Drawing II. (3)** Drawing media including graphite, ink, brush, light sensitive, electrical-mechanical and embossing techniques. Priority for majors. Six contact hours.

(174) **CAA 1205. Figure Study. (3)** A course utilizing the figure as it relates to form, contour and movement; an anatomical study emphasizing the relationships of skeletal and muscle organization and other referents in the development of graphic skills and vocabulary. Six contact hours. Majors may repeat for a total of six hours credit.

(176) **CAA 1206. Concepts in Form and Structure. (3)** A combination theory and methods course designed to explore natural forms as they relate to the third dimension; developed from analysis of objects conditioned by perceptual attitudes. Six contact hours.

(276) **CAA 2170. Visual Arts Education: Early and Middle Years. (3)** Emphasis on the creative growth potential of children at the elementary level; perceptual development and learning objectives; past and current philosophies, psychology and methods in art education; individual studio problems involving art elements, principles and media.

(277) **CAA 2171. Foundations of Art Education. (3)** The development of objectives for art education based on personal and historical references, philosophy and psychology. A critical examination of traditional and contemporary bases.

(178A) **CAA 2215. Ceramics/Handbuilding. (3)** A skills course introducing methods of forming clay, glaze composition and low-temperature firing procedures. Six contact hours.

(178B) **CAA 2216. Ceramics/Wheel. (3)** Introduction to wheel forming techniques and concepts involving skill development, glaze formation and basic high-fire techniques. May be repeated for credit. Six contact hours.

(179) **CAA 2220. Introduction to Fiber. (3)** An introduction to the use of non-loom weaving techniques. Emphasis will be placed on the structure and the further application of the techniques. Course may include frame weaving, basketry, cardweaving, spinning and felting. May be repeated for credit. Six contact hours.

(177) **CAA 2221. Batik. (3)** Emphasis is placed upon developing an understanding of the historical rudiments of designing on fabrics, using reverse or resist techniques; the artistic and sociological implications of the revival of this ancient art/craft; the exploration of contemporary design and techniques as a medium of visual expression. Six contact hours.

(180) **CAA 2225. Metalsmithing/Jewelry I. (3)** An introduction to basic design problems in metalsmithing, with an emphasis on the development of mechanical skills, piercing, cold joining, soldering, forming and finishing processes of non-ferrous metals. Includes a brief survey of contemporary trends in metalsmithing. Six contact hours.

(285) **CAA 2226. Casting/Jewelry. (3)** Casting and construction for jewelry. Course includes a survey of contemporary jewelry design. May be repeated for credit. Six contact hours.

(182) **CAA 2230. Introduction Painting. (3)** Basic theory and technique of easel painting in oils from preparation of the painting support through final framing. Basic experience in drawing helpful. Six contact hours.

(187) **CAA 2231. Watercolor/Mixed Media. (3)** Fundamentals of watercolor and related mixed media with emphasis on developing aesthetic understandings, skills in handling painting media and exploration of varied approaches to pictorial solutions. Individual experimentation and expression. May be repeated for credit. Six contact hours.

(183) **CAA 2235. Photography I. (3)** Fundamental principles, processes and aesthetics of photography. Six contact hours.

(289) **CAA 2240. Printmaking: Lithography. (3)** A survey of technical hand printing approaches to stone and plate lithography. May be repeated for credit. Six contact hours.

(290) **CAA 2241. Printmaking: Etching. (3)** A survey of etching, equating, engraving, drypoint and sculptural techniques in intaglio print medium. Printing in mono-tone and multi-color approaches are required. May be repeated for credit. Six contact hours.

(291) **CAA 2242. Printmaking: Silk Screen. (3)** A survey of tusche and glue, cut film, glue negative, photographic image and mixed techniques in screen printing. Problems of personal imagery stressed. May be repeated for credit. Six contact hours.

(292) **CAA 2243. Printmaking: Woodcut. (3)** A survey of approches to relief media: wood, metal, plastic, linoleum and plaster. Image development is stressed along with the unique qualities of this medium. May be repeated for credit. Six contact hours.

(186) **CAA 2245. Introduction to Sculpture. (3)** A beginning studio course designed to introduce three dimensionsl forms and concepts with an emphasis on methods and materials. Six contact hours.

(201) **CAA 2601. Sophomore Individual Project. (3)** Prerequisite: CAA 1101. Project designed by the student with the assistance of the advisor and review committee. Majors only. Three contact hours.

(275) **CAA 2680. Issues in Modern Painting. (3)** Seminar with assigned reading, slides, exhibition visits. Two major papers or studio projects.

(305) **CAA 3001. Topics in Art. (1-3)** Special topics in arts. May be repeated for credit with change in topic.

(278) **CAA 3170. Art Education Methods I (K-12). (3)** Prerequisite: CA 2171. Analysis of learning theories as related to growth and development in visual arts; organization of tools, media and materials; curriculum design in planning art units and lesson plans; evaluation and motivation techniques.

(279) **CAA 3171. Art Education Methods II. (K-12) (3)** Prerequisite: CAA 2171. The school structure—local, state and national economic and political considerations; the relationship of the arts and artists to contemporary society; issues and research in art education; classroom management; school exhibition. Three contact hours plus school visits.

(295) **CAA 3172. Aesthetic Education in the Schools. (3)** Prerequisite: consent of instructor. Focus will be upon assisting classroom and art teachers in developing techniques for dealing with aesthetic experiences and the creative process as tools for learning. Emphasis will be placed upon productive analysis of the dimensions of natural and created art forms (visual arts, dance/movement, music and drama), consideration of their qualities and making value judgments. *CEMREL Aesthetic Education* materials dealing with aesthetics of the physical world, arts elements, creative process, artists, environment and the culture will be utilized. May be repeated for credit.

(280) **CAA 3175. Intermediate Ceramics. (3)** Prerequisite: CAA 2215 or 2216 or consent of the instructor. Emphasis on exploration and development of individual concepts and relevant technical concerns beyond CAA 2215 and 2216. Six contact hours. May be repeated for credit.

(281) **CAA 3220. Intermediate Fibers. (3)** Prerequisite: CAA 2220 or consent of instructor. Introduction to the loom, procedures for warping, basic technique including drafting, patterns and color problems; emphasis on technique and structure. May be repeated for credit. Six contact hours.

(282) **CAA 3221. Rug Weaving. (3)** Prerequisite: CAA 3220. A technical study including warp-faced and weft-faced rugs, pile, and flat woven surfaces. May be repeated for credit. Six contact hours.

(283) **CAA 3222. Tapestry. (3)** Prerequisite: CAA 3220 or consent of instructor. Tapestry techniques concentrating on color and design. May be repeated for credit. Six contact hours.

(181) **CAA 3225. Metalsmithing/Jewelry II. (3)** Prerequisite: CAA 2225. Fabrication of two and three dimensional forms; introduction to additional techniques in raising, forming, forging and surface embellishment. Emphasis on the exploration of design concepts. Six contact hours. May be repeated for credit.

(286) **CAA 3230. Intermediate Painting. (3)** Prerequisite: CAA 2230 or consent of instructor. Problems of composition, color, space and surface as applied to both abstract and figurative modes of expression. May be repeated for credit. Six contact hours.

(184) **CAA 3235. Photography II. (3)** Prerequisite: CAA 2235 or consent of instructor. Intermediate techniques in photography; exposure, development of printing. Emphasis is given to relationship of picture aesthetic and printing techniques. May be repeated for credit with permission of instructor. Six credit hours.

(287) **CAA 3236. Alternative Photgraphic Media. (3)** Alternative silver and non-silver photographic media and aesthetics. Experimental studies in the personal and imaginative use of photographic materials. Emphasis on antiquated and recent photographic materials and approaches. Six contact hours.

(288) **CAA 3237. Color Photography. (3)** Prerequisite: CAA 3235 or consent of instructor. Introduction to photographic color theory and color aesthetics. Studio work limited to the color slide medium. Six contact hours.

(294) **CAA 3240. Intermediate Printmaking Studio. (3)** Prerequisite: one of the following/CAA 2240, 2241, 2242, 2243. A course concerning the development of intermediate skills in any or combined graphic techniques (etching, woodcut, lithography, silk screen, collography, drawing or collage). Special emphasis on color printing and artistic themes. May be repeated for credit. May be repeated for credit. Six contact hours.

(239A) **CAA 3245. Intermediate Sculpture. (3)** Prerequisite: CAA 2245 or consent of instructor. Media involve plaster, wax, clay, plastic and metal with the utilization of various mold-making and casting techniques. May be repeated for credit. Six contact hours.

(296) **CAA 3250. Visual Communication and Design I. (3)** Prerequisite: CAA 1101 and 1201 or consent of instructor. Development of creative solutions in graphic and communication design with emphasis on exploring the equipment, materials, techniques, and procedures for graphic indication, layout, and comprehensive layouts. Six contact hours of studio-lecture.

(297) **CAA 3251. Visual Communication and Design II. (3)** Prerequisite: CAA 3250 or consent of instructor. Individual solutions to more complex and integrated design problems including graphic photography, finished comprehensive layouts, concept and theme development. Six contact hours of studio lecture.

(298) **CAA 3479. Student Teaching in Visual Arts. (12)** Prerequisite: Senior standing in the Teacher Certification track of the BCA degree program. A 14-week practicum in the teaching of Visual Arts at the elementary and secondary levels. Weekly seminar. Substitutes for CAA 3692 and its track B elective. Three-contact-hour weekly seminar plus the semester practice teaching experience.

(301) **CAA 3601. Junior Individual Project I. (3)** Prerequisite: CAA 2601. Majors only.

(302) **CAA 3602. Junior Individual Project II. (3)** Prerequisite: CAA 3601. Majors only.

(401) **CAA 3691. Senior Individual Project II. (6)** Prerequisite: CAA 3602. Majors only. Three contact hours.

(402) **CAA 3692. Senior Individual Project II. (6)** Prerequisite: CAA 3691. Majors only. Three contact hours.

Women's Studies

Coordinator: Associate Professor Blackwelder

The minor in Women's Studies is designed to allow students to pursue an interdisciplinary and multicultural study of women's experience and contributions, while fulfilling the academic requirements for one of the approved university degree programs.

The Women's Studies Minor, as well as each individual Women's Studies course, is open to all students at UNCC. Students seeking a minor in Women's Studies must fulfill general degree requirements and requirements for their selected major. In addition, they must complete a minimum of 21 hours of courses approved for the Women's Studies minor, including WST 3101 (Introduction to Women's Studies). Courses other than WST 3101, 3050, and 3803 are offered in established departments of The University. Any hours offered for the Women's Studies minor may also be counted toward major and general degree requirements. In order to qualify for the Women's Studies minor, students must have at least a 2.0 grade average in courses taken for the minor.

Students seeking certification in Women's Studies will plan their program with their departmental advisors and with the Women's Studies coordinator who will review and approve all applications for certification.

COURSE DESCRIPTIONS

WST 3101. Introduction to Women's Studies. (3) Introduction to 1) the contributions and uses of various disciplines in the study of women—including sociology, economics, psychology, political science, history, literature, art, philosophy and ethnic studies; 2) the critical approaches, methodologies and tools for doing research related to women's experience; 3) the impact of gender; and 4) the role of values, institutions, and socialization processes in the lives of women in our own and other cultures.

WST 3050. Topics in Women's Studies. (3) Investigation of specific issues in Women's Studies, either from the perspective of a single discipline or in a multidisciplinary fashion. May be repeated for credit with the permission of the Women's Studies Coordinator.

WSTT 3803. Independent Study. (3) Prerequisite: permission of instructor and Women's Studies Coordinator. Supervised individual study and/or field-based experience in a topic or area of Women's Studies of particular interest to the student. May be repeated for credit.

OTHER COURSES

Following is a list of the courses available at present which may be used to satisfy the requirements for the minor in Women's Studies. Other courses of appropriate content may be approved by the Coordinator as they become available.

ANT 2121	Comparative Family Systems
ANT 2145	Evolution of Human Sexual Behavior
CLG 5100	Counseling Needs of Women
ENG 4002	Women and Literature
ECO 3102	Consumer Economics
HED 2101	Personal and Community Health
HIS 3290	History of Women in the United States
PSC 3133	Women and Politics
SOC 2132	Marriage and the Family
SOC 4261	Human Sexuality
SOC 4263	Sociology of Sex Roles

Topics courses regularly offered include:

AAA 3050	Afro-American Women
BUS 3000	Women in Management
ANT 4090	Women and Culture

College of Business Administration

Dean: Professor Neel
Assistant Dean: Conboy

Objectives: The College of Business Administration is committed to excellence in instruction at both the undergraduate and the Master of Business Administration levels. The College provides a broad educational base which will help prepare the student for responsible leadership in business and professional life. The academic programs and methods of instruction are designed to maximize the opportunities for each student to develop his/her full intellectual potential.

In addition to the teaching mission, the College of Business Administration has a research role and a service role. Through research, publication and participation in the programs of professional organizations, the College seeks to make a contribution to the advancement of knowledge and to assist faculty members in their own professional development.

The service thrust covers both the internal dimension within the University and the external, or public, dimension. The College faculty are active in the committee and other service work of their respective departments, the College and the University. The College faculty also provide their expertise to a wide range of community, business and governmental groups and organizations.

Programs. The College of Business Administration has nearly 2,300 students enrolled in its academic programs. These are the programs leading to the Bachelor of Arts degree in Business Administration; the Bachelor of Science degree in Accounting, which offers full academic preparation for the Certified Public Accountant (CPA) designation; and the Bachelor of Arts degree in Economics.

The College also offers a Master of Business Administration program at the graduate level. This program is designed for men and women who are fully employed and must undertake graduate study on a part-time basis.

Programs are designed so that transfer students from community colleges and other institutions may enter the program and complete their degree requirements in the last two years of their college work. Students planning to take their first two years in community colleges should inform their adviser or counselor of their intent to apply to UNCC so that their program may be tailored to facilitate transfer.

Satisfaction of Prerequisites and Enrollment in Upper Division Courses. Students must meet the prerequisites stated for the courses in the College of Business Administration. Enrollment in the upper division (3000 and 4000-level) courses offered by the College of Business Administration is open to juniors and seniors only.

Evening Courses and Summer Sessions. All courses required in the Business Administration and the Accounting degree programs are offered in the evening, as well as during the day. The Master of Business Administration program is offered entirely in the evening. A full program of summer offerings is also available.

Scholarships. There are several scholarships available for both men and women studying in the College of Business Administration. Some of the scholarships are designated to recognize academic excellence in the junior and senior years. *Further information can be obtained from the Financial Aid Office at UNCC.*

Careers. Graduates in the Business Administration program may enter careers in: sales and marketing, banking and finance, transportation, personnel, manufacturing, retailing, insurance, public administration, management and real estate.

Accounting graduates find careers in: public accounting, internal auditing, government accounting, controllership and management.

Economics graduates may enter careers in: business economic analysis, teaching, research and government.

MASTER OF BUSINESS ADMINISTRATION

The primary objective of graduate study in business is to develop candidates for leadership positions in complex organizations of the future. The basic philosophy of the graduate program recognizes that managerial procedures and practices of today are subject to rapid change. For this reason, the program emphasizes a process of perceiving, analyzing, and solving administrative problems. The burden is placed on the student to determine relevant facts, evaluate alternatives, and prepare for action. Organizations are analyzed as behavioral, financial, and technological units operating in an environment with changing regional, national, and international dimensions. Candidates are encouraged to anticipate, innovate, and adjust to this dynamic environment.

The curriculum stresses the universal characteristics of management and their application in various types of organizations. Fundamental problems are examined from an economic, information systems and behavioral point of view.

Courses in economic analysis and managerial accounting focus on financial performance and resource allocation, while those in organizational behavior emphasize individual and group conduct. Courses in information analysis make possible the integration of the economic and behavioral aspects of administrative problems with the decision-making requirements of practicing managers. These areas along with courses in the functional areas of business, marketing, production, finance, and legal environment constitute the core courses in basic analysis required of all candidates.

After completing the basic analysis sequence, a student selects two additional courses from among the graduate courses offered by the College of Business Administration. This provides an opportunity for students to choose courses of particular interest to them.

The final courses in the program deal with management policy and strategic planning. These courses are designed to integrate the knowledge and skills of analysis developed in the preceding courses of the MBA program and to assure that the student can demonstrate application in a comprehensive manner through a study of cases, current information on company and industry applications, and a major written project.

The methods of instruction adopted in the program are designed to prepare a candidate for the realities of a management career. These methods include simulations, role playing, written communications, lectures, and the case study method. It is the ability to analyze, to judge trends, and to weigh diverse influences that leads to sound judgment. This capability can be developed only through practice. The methods of instruction employed in the program are designed to provide such practice.

Courses in the program are scheduled to accommodate part-time students. Classes are held in the evening throughout the year. Part-time students may enroll in two courses during the fall and spring semesters. A part-time student may complete the program in three years. Full-time students may enroll in four courses during the fall and spring semesters and may complete the program in two years, depending upon scheduling of courses.

The program requires a minimum of 39 semester hours of graduate credit in approved courses.

Program Design

A. Preparation

Candidates for the Master of Business Administration degree must present evidence of preparation in accounting, calculus, statistics, economics, management information systems, and computer science before beginning the graduate course work. Prerequisites will be determined at admission.

B. Basic Analysis

All candidates are required to take the following basic core courses (27 hours):

MBA 6111	Macroeconomics and Business Forecasting
MBA 6112	Managerial Economics
MBA 6122	Quantitative Analysis of Business
MBA 6131	Managerial Accounting
MBA 6141	Production and Operations Management
MBA 6152	Financial Management
MBA 6161	Organizational Behavior I
MBA 6171	Marketing Management
MBA 6181	Legal Environment

C. Elective Courses

After completing the basic analysis sequence, candidates must select two additional courses (six hours) from among the following courses:

MBA 6121	Management Information Systems
MBA 6151	Financial Markets
MBA 6153	Investment Management
MBA 6162	Organizational Behavior II
MBA 6172	Marketing Research
MBA 6173	Promotional Strategy
MBA 6192	Business and Society
MBA 6890	Directed Individual Study

D. Capstone Courses

The final courses required for all candidates are:

MBA 6194	Management Policy
MBA 6196	Strategic Planning

COURSE DESCRIPTIONS

Courses for Graduate Students Only

(611) **MBA 6111. Macroeconomics and Business Forecasting. (3G)** Managerial decision making within the macroeconomic environment. Topics include managerial applications of dynamic economic forecasts at the national, regional, and industry level; the role of the monetary and financial sectors of the economy on firm planning; and the impact and opportunities of the expanding international economy on regional and national firms.

(612) **MBA 6112. Managerial Economics. (3G)** Examines the pricing system within the various market structures of the economy. Incorporates optimization procedures to facilitate the study of decision making under various market conditions facing the firm. The problems of economic concentration, resource allocation, and governmental roles in a market are studied.

(621) **MBA 6121. Management Information Systems. (3G)** Planning, design, implementation, and control of management information systems. Emphasis on the emerging utilization of more advanced information systems, the role of information management process and the networks necessary for efficient transmittal of information to the proper sources, and the generation and analysis of data for decision making.

(622) **MBA 6122. Quantitative Analysis of Business. (3G)** An analytical approach to the management process. Generalized models for decision making with major emphasis on application of the scientific method to management problems.

(631) **MBA 6131. Managerial Accounting. (3G)** Management's use of accounting. Topics include profit planning and control, evaluation of performance, cost analysis, and income tax planning.

(641) **MBA 6141. Production and Operations Management. (3G)** Use of the economic, behavioral, and quantitative disciplines to develop the ability to manage in or around the operating systems of organizations - both manufacturing and non-manufacturing. Knowledge of the best systems and an approach to problem solving are developed and applied through cases to decisions which maintain the productivity of systems yielding products or services. Included are work methods, processes, and inventory, materials, and capacity management.

(651) **MBA 6151. Financial Markets. (3G)** Major financial institutions, particularly commercial banks, and their role in the intermediation process and as suppliers of funds to the money and capital markets. Comparative financial policies of these institutions are examined in the context of their legal and market environment.

(652) **MBA 6152. Financial Management. (3G)** Prerequisite: MBA 6131. Theory and practice of corporate finance including asset management, cost of capital and capital budgeting, optimization problems and socio-economic aspects of financial management. Computer technology may be employed when applicable.

(653) **MBA 6153. Investment Management. (3)** Prerequisite: MBA 6152. Theory and practice of investment decisions of individuals and fund managers. Topics include the status of capital market theory, the efficient market hypothesis literature, and a portfolio performance measurement. Standard institutional and investment analysis topics are covered, as well as futures and options markets and international investment topics.

(661) **MBA 6161. Organizational Behavior I. (3G)** Management and organization theory and analysis of the behavior of people in organizations. Problems in motivation, leadership, interpersonal communication, group dynamics and organization structure are introduced.

(662) **MBA 6162. Organizational Behavior II. (3G)** Prerequisite: MBA 6161. Continuation of Organizational Behavior I. Topics include performance determinants and appraisal, design of complex organizations, team building, organizational change, career development and conflict management.

(671) **MBA 6171. Marketing Management. (3G)** A managerial approach to strategic marketing decision making. Topics include promotional strategy, channels of distribution, demand analysis and pricing, and international marketing. Case studies, readings and simulations are used.

(672) **MBA 6172. Marketing Research. (3G)** Prerequisite: MBA 6171. Planning, execution and evaluation of marketing research activities. Emphasis on the techniques and methodology used in the collection, analysis and interpretation of economic, demographic and sociological data for use in marketing decision making.

(673) **MBA 6173. Promotional Strategy. (3G)** Prerequisite: MBA 6171. Opportunities and challenges for an organization through advertising, personal selling, sales promotion and publicity. It includes analysis of the legal and ethical problems involved in this area. Case studies and a project assignment are used.

(681) **MBA 6181. Legal Environment. (3G)** An intensive study of the common and statutory law which is applicable in a business decision-making context. Emphasis placed upon Federal Regulatory Law and the role and functioning of the Federal Regulatory agencies in supervising the scope of permissible business activities.

(692) **MGT 6192. Business and Society. (3G)** Ethical, moral, political and social aspects of policy formulation and implementation. Management's responsibilities to consumers, employees, investor/owners, and society are stressed. Case studies are used.

(694) **MGT 6194. Management Policy. (3G)** Examination of the need to integrate the functional activities of the firm in planning corporate objectives and achieving operating results. Emphasis on ability to identify issues and problems of the firm as a whole, to explore alternatives and to make decisions which recognize the interrelationships of the functional specialties within the total organization. Application and integration of knowledge and skills of analysis developed in the preceding courses of the MBA program.

(696) **MGT 6196. Strategic Planning. (3G)** Prerequisite: MBA 6194. Emphasis on functioning of the firm or organization as a whole within a rapidly changing environment including changing industry conditions, as well as technological, social political and economic changes. Plans, strategies and implementation policies must be developed if the firm is to continue. Strategic planning techniques being developed by researchers and by corporate practitioners are studied. A major objective of the course is to assure that the student completing the professional MBA program can demonstrate application in a comprehensive manner. This is done through a study of cases, current information on company and industry applications, and through a major written project.

(690) **MBA 6890. Directed Individual Study. (3-6G)** Directed individual study and in-depth analysis of a special area of management, economics, business or accounting. The course may be used to satisfy up to six semester hours of graduate credit requirements in the Master of Business Administration degree program and may be repeated for credit provided a different area of study is undertaken each time. Permission of a member of the graduate faculty who would direct the study must be secured before registering for the course.

Department of Accounting

Chairperson: Professor Turner
Associate Professors: Bhamornsiri, Godfrey, Guinn, Hinson, Jolly, Malmgren, Williamson
Assistant Professor: Nunley
Assistant Professor Emeritus: Higgins
Distinguished Lecturer: Wallace
Lecturers: Baucom, Odom

The objective of the Accounting program is to educate students to commence and continue to develop in a wide range of professional accounting careers. This program provides conceptual and technical knowledge in the accounting and business areas which will serve as a foundation for accounting career development.

A major in Accounting leading to the B.S. degree consists of 27 semester hours of accounting courses, Political Science 1110 (Introduction to American Politics), Speech 1101 (Introductory Speech), and 36 semester hours of related work in business administration, economics and mathematics as listed below.

I. *Accounting*

Principles of Accounting (ACC 2121 and 2122) ..... 6 hrs.
Managerial Cost Accounting (ACC 3136) ..... 3 hrs.
Intermediate Financial Accounting (ACC 3138 and 3139) ..... 6 hrs.
Specialized Accounting Topics (ACC 3141) ..... 3 hrs.
Internal Control and Auditing (ACC 3148) ..... 3 hrs.
Federal Taxation (ACC 3146 and 3147) ..... 6 hrs

II. *Business Administration*

Marketing Management (BUS 3110) ..... 3 hrs.
Financial Management (BUS 3120) ..... 3 hrs.
Business Law I (BUS 3150) ..... 3 hrs.
Operations Management (BUS 3100) ..... 3 hrs.
Management Information Systems (BUS 3130) ..... 3 hrs.
Management Concepts and Practice (BUS 3140) ..... 3 hrs.
Business Policy (BUS 3280) ..... 3 hrs.

III. *Economics*

Principles of Economics (ECO 2101 and 2102) ..... 6 hrs.

IV. *Mathematics*

Basic Concepts of Mathematics (MAT 1101) ..... 3 hrs.
Calculus (MAT 1120) ..... 3 hrs.
Algorithmic Languages (CSC 1100) ..... 3 hrs.
Statistics (MAT 1220) ..... 3 hrs.

V. *Other*
Speech (SPH 1101) ..... 3 hrs.
Introduction to American Politics (PSC 1110) ..... 3 hrs.

Students who complete a major in Accounting will meet the educational requirements to take the North Carolina Certified Public Accountant Examination.

In addition to the University requirements of a 2.0 minimum grade point average, a student must have at least 2.0 grade point average in all 3000-level required accounting courses in order to obtain a B.S. Degree in Accounting.

RECOMMENDED CURRICULUM FOR THE B.S. DEGREE IN ACCOUNTING

Freshman Year

English 1101	3	English 1102	3
Laboratory Science	4	Laboratory Science	4
Mathematics 1101	3	Mathematics 1120	3
Humanities	3	Computer Science 1100	4
Elective (1)	2	Elective (1)	1
	15		15

Sophomore Year

Principles of Economics (ECO 2101)	3	Principles of Economics (ECO 2102)	3
Humanities	3	Statistics (MAT 1220)	3
Principles of Accounting (ACC 2121)	3	Principles of Accounting (ACC 2122)	3
Elective (1)	3	Speech 1101	3
Introduction to American Politics (PSC 1110)	3	Elective (1)	3
	15		15

Junior Year

Intermediate Financial Accounting I (ACC 3138)	3	Intermediate Financial Accounting II (ACC 3139)	3
Marketing Management (BUS 3110)	3	Operations Management (BUS 3100)	3
Management Information Systems (BUS 3130)	3	Financial Management (BUS 320)	3
Management Concepts and Practice (BUS 3140)	3	Managerial Cost Accounting (ACC 3136)	3
Elective (1)	3	Elective (1)	3
	15		15

Senior Year

Business Law I (BUS 3150)	3	Internal Control and Auditing (ACC 3148)	3
Income Taxation for Individuals (ACC 3146)	3	Advanced Income Taxation (ACC 3147)	3
Specialized Accounting Topics (ACC 3141)	3	Electives (3)	9
Business Policy (BUS 3280)	3		
Elective (1)	3		
	15		15

A minimum of four hours of electives must be taken from courses other than those offered in the College of Business Administration.

Students planning to take the CPA Exam are encouraged to take the following courses in their senior year:

Accounting for Not-for-Profit Org. (ACC 3130)	3 hrs.
Business Law II (BUS 3250)	3 hrs.
Management Science (BUS 3203)	3 hrs.
CPA Preparation (ACC 3149)	3 hrs.

In order to avoid overspecialization, students should not normally take more than two elective courses in accounting.

Effective fall 1986, accounting majors must present a grade point average of 2.75 or more in the following courses to qualify for enrollment in ACC 3138: ENG 1101 and 1102, MAT 1101, 1120 and 1220, CSC 1100, ECO 2101 and 2102, and ACC 2121 and 2122.

(201) **ACC 2121. Principles of Accounting I. (3)** Fundamental accounting principles, with emphasis on managerial use of accounting data and analysis of financial statements. Three lecture hours and one laboratory period of two hours a week. The laboratory period is optional unless scheduled for an examination.

(202) **ACC 2122. Principles of Accounting II. (3)** Prerequisite: ACC 2121. Basic accounting theory, corporate financing and reporting; financial planning; and an introduction to managerial accounting. Three lecture hours and one laboratory period of two hours a week. The laboratory period is optional unless scheduled for an examination.

(203) **ACC 2123. Fundamentals of Accounting. (3)** Accelerated and in-depth introduction to the conceptual foundations of financial and managerial accounting. Appropriate as a foundation for further work in business management, personal financial management, estate planning, or applications to non-profit organizations. (Cannot be taken for credit by majors in College of Business Administration, but may be taken by MBA students to satify the accounting prerequisite.) Credit for ACC 2123 cannot be applied toward ACC 2121-2122.

(490) **ACC 3043. Current Developments in Accounting. (1)(2) or (3)** May be repeated for credit. Prerequisite: consent of the Department. A research project will be required. Topics will be selected from internal and external auditing, governmental accounting, income taxes, managerial accounting and accounting theory.

(300) **ACC 3130. Accounting for Not-for-Profit Organizations. (3)** Prerequisite: ACC 2121 or equivalent. Accounting for governmental and other not-for-profit entities. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

(330) **ACC 3132. Statistics and Computers in Accounting. (3)** Prerequisites: MAT 1220, CSC 1100 and ACC 2122. A survey of statistical sampling techniques used in accounting. An introduction to accounting EDP systems, with particular emphasis on internal controls and computer auditing techniques. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

(385) **ACC 3134. Federal Income Taxation. (3)** Prerequisite: ACC 2122. Open to non-Accounting majros only. Federal income tax laws and regulations applicable to individuals and business organizations. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

(371) **ACC 3136. Managerial Cost Accounting. (3)** Prerequisite: ACC 2122. Analysis of the uses of accounting data in planning, controlling and decision-making processes of business enterprises. Three lecture hours and two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

(374) **ACC 3138. Intermediate Financial Accounting I. (3)** Prerequisite: ACC 2122 with a grade of *C* or better. Analysis of the requirements of outsiders (investors, auditors and governments) for information about the status and operations of firms. The application of various theories and concepts will be stressed. Three lecture hours and two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

(375) **ACC 3139. Intermediate Financial Accounting II. (3)** Prerequisite: ACC 3138 with a grade of *C* or better. Continuation of ACC 3138 with an emphasis on accounting problems peculiar to corporate organizations and governmental units. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

(471) **ACC 3141. Specialized Accounting Topics. (3)** Prerequisite: ACC 3139 with a grade of *C* or better. Specialized accounting topics with emphasis on consolidated statements. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

(477) **ACC 3146. Income Tax for Individuals. (3)** Prerequisite: ACC 2122 with a grade of *C* or better. Federal income tax laws and regulations applying to individuals. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

(478) **ACC 3147. Advanced Income Taxation. (3)** Prerequisite: ACC 3146. Federal income tax laws and regulations applying to partnerships, corporations, estates and trusts, and estate, gift and inheritance taxes. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

(475) **ACC 3148. Internal Control and Auditing. (3)** Prerequisite: ACC 3139 with a grade of *C* or better. Analysis of the accounting control systems and the independent auditor's examination of the system and other evidence as a basis for expressing an opinion on financial statements. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

(479) **ACC 3149. CPA Preparation. (3)** Prerequisite: ACC 3141. Intensive study of principles and techniques involved in the solution of advanced accounting problems encountered in public accounting practice. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

Department of Business Administration

Chairperson: Associate Professor Stevenson
Professors: Barnes, Conrad, Palmer
Associate Professors: Curran, Geurin, Kennedy, Paksoy, Robbins, Sage, Swayne, Trosch
Assistant Professors: Calvasina, Greco, Hogue, Hornaday, Kohut, Loehr, McDonald, Nkomo, Nunnally, Scheibal, Stokes
Adjunct Assistant Professor: Miller
Lecturers: Baxter, Bowers, Harris

B.A. IN BUSINESS ADMINISTRATION

The goals of the undergraduate program in Business Administration are to provide graduates with:

1. Specialized knowledge and skills enabling them to perform with competence upon graduation and progress rapidly in their profession.

2. Broad knowledge of business organization and processes enabling them to see individual functions from the perspective of the organization and to facilitate constructive change.

3. The qualities traditionally attributed to a liberal arts education at the university level, including a disciplined and inquiring mind, and understanding of one's culture and self.

To this end, the Department offers a curriculum leading to the Bachelor of Arts degree in Business Administration composed of the following major components:

1. *Prerequisites:* Courses necessary as preparation for business courses. To be completed before enrolling in business courses: MAT 1101, 1120, 1220; ECO 2101, 2102; ACC 2121, 2122.

2. *The Business Core:* Business, Accounting and Economics courses designed to provide essential understanding of business processes and organization.

3. *Business Electives:* Courses designed to provide depth in specialized areas.

4. *Other Electives:* Throughout the undergraduate curriculum, a student can, and is encouraged to, elect courses outside the business area in following a personal interest or course of study which will add breadth and depth of understanding and complement the business degree. *General Electives* offered by the Department can also be applied to degree requirements.

To complete a program a candidate must complete the following courses:

1. **PREREQUISITES**—*TO BE COMPLETED PRIOR* to enrollment in Business Administration Department courses.

   a. *Mathematics*

   Basic Concepts of Mathematics (MAT 1101) ..... 3 hrs.
   Calculus (MAT 1120) ..... 3 hrs.
   Elements of Statistics (MAT 1220) ..... 3 hrs.

   b. *Economics*

   Principles of Economics (ECO 2101 and 2101) ..... 6 hrs.

   c. *Accounting*

   Principles of Accounting (ACC 2121 and 2122) ..... 6 hrs.

2. **THE BUSINESS CORE**—To be substantially completed before enrolling in *Business Elective* courses.

   a. *Specialized and Staff Areas:* To be substantially completed before enrolling in *Functional Area* courses.

      Managerial Cost Accounting (ACC 3136) ..... 3 hrs.
      Economics of the Firm (ECO 3125) ..... 3 hrs.
      Management Information Systems (BUS 3130) ..... 3 hrs.
      Management Concepts and Practices (BUS 3140) ..... 3 hrs.
      Business Law I (BUS 3150) ..... 3 hrs.
      Business Communications (BUS 3160) ..... 3 hrs.

   b. *Functional Areas:* To be completed before enrolling in *Business Policy.*

      Operations Management (BUS 3100) ..... 3 hrs.
      Marketing Management (BUS 3110) ..... 3 hrs.
      Financial Management (BUS 3120) ..... 3 hrs.

   c. *Capstone Course:* Integrates all other courses from viewpoint of chief executive officer.

      Business Policy (BUS 3280) ..... 3 hrs.

3. **BUSINESS ELECTIVES:**
   To be selected by student for professional competence in selected areas ..... 9 hrs.

   TOTAL HOURS REQUIRED ..... 60 hrs.
   In computing the quality point average in the major, all required courses are included.

4. **OTHER ELECTIVES:** 120 credit hours are required for graduation. The 60 hours of other electives may be used as the student and his adviser deem advisable in designing a curriculum to meet student objectives. Possibilities include a concentration in areas such as the physical and social sciences or other professional schools. In this way, the student can pursue non-business subjects in depth either to satisfy personal interest or augment the business degree for professional purposes. At least 33 hours of these electives must be taken from courses offered outside the College of Business Administration and *at least three hours of these electives must be taken from courses offered inside the College of Business Administration.*

TYPICAL PROGRAM FOR BUSINESS ADMINISTRATION

Most students enter the business program either as freshmen or as juniors transferring from another institution. Many work while attending school, others do not. A significant number wish to complete the degree as quickly as possible while the circumstances of others dictate or permit a less intensive schedule.

The needs of transfer students are quite varied because of transferred credits, lack of prerequisites and other factors. It is therefore difficult to describe typical transfer student programs.

The needs of entering freshmen are more predictable, however, and the following program illustrates how an entering freshman might plan to complete the curriculum in four years.

FOUR-YEAR PROGRAM

Freshman Year

Fall		Spring	
*English 1101	3	*English 1102	3
*Mathematics 1101[1]	3	*Mathematics 1120[1]	3
*Lab Science	4	*Lab Science	4
Humanities	3	*Humanities	3
Elective	2	Elective	2
	15		15

Sophomore Year

Economics 2101[1]	3	*Economics 2102[1]	3
Accounting 2121[1]	3	Accounting 2122[1]	3
Electives	9	Mathematics 1220[1]	3
		Electives	6
	15		15

Junior Year

Economics 3125	3	Business 3130	3
Accounting 3136	3	Business 3100	3
Business 3140	3	Business 3110	3
Business 3150	3	Business 3120	3
Business 3160	3	Elective (within the College of Business)	3
	15		15

Senior Year

Business Electives	9	Business 3280[2]	3
Electives	6	Electives	12
	15		15

*General Degree Requirement
[1]Prerequisites for upper division required business courses.
[2]To be taken after all 300-level required business core courses have been fulfilled.

Courses for Advanced Undergraduates

CORE COURSES

(300) **BUS 3100. Operations Management. (3)** Prerequisites: MAT 1101, 1120 1220; ECO 2101, 2102; ACC 2121, 2122; junior standing. This course will provide an introduction and development of the management functions in manufacturing and non-manufacturing organizations. It will take a systems approach in providing an insight into the organizational environment, the basic operating functions, the problems and decisions a manager encounters and the solution techniques and models with which he/she deals. Computer application will be included where appropriate.

(310) **BUS 3110. Marketing Management. (3)** Prerequisites: ECO 2101, 2101; ACC 2121, 2122; junior standing. The objective of this course is to acquaint the student with the marketing concept and the various aspects of marketing and its interface with the external environment and other functional areas of the organization. It is aimed at developing breadth in the subject and providing a foundation for further study in marketing. At the same time it will have wide enough coverage to stand alone for those who do not wish to concentrate in marketing.

(320) **BUS 3120. Financial Management. (3)** Prerequisites: MAT 1101, 1120, 1220; ECO 2101, 2102; ACC 2121, 2122; junior standing. Principles and problems of financial aspects of managing an individual company. Particular emphasis on financial analysis for use in managing capital structure, least-cost asset management, planning and control. Computer application will be included where appropriate.

(330) **BUS 3130. Management Information Systems. (3)** Prerequisites: ECO 2101, 2102; ACC 2121, 2122; junior standing. The focus of the course is on the impact of information systems on management decision-making activities. Principles of the structure and analysis of information flows within an organization are studied. Emphasis is placed on data base accumulation and generation, capabilities of information processing, system function (e.g., file creation, report generation, etc.), and evaluation and modification of information systems.

(340) **BUS 3140. Management Concepts and Practice. (3)** Prerequisites: ECO 2101, 2102; ACC 2121, 2122; junior standing. Study of the role of the contemporary manager with emphasis upon the behavioral and administrative processes fundamental to the successful operation of various types of enterprise. Situational approaches to management are explored with the manager viewed as a decision maker interacting with the firm's economic, technological, social, political and ethical environment. Examination of research and theory in organizational behavior, organization theory and interpersonal communication. Case analysis is used to simulate actual problems encountered in organizations.

(350) **BUS 3150. Business Law I. (3)** Prerequisite: junior standing. A study of the legal setting of business and its relationship to the business firm. Topics covered include: the nature of law and the court system, torts, contracts, commercial paper, consumer credit, sales, partnerships, corporations, the employer-employee relationship, real and personal property.

(360) **BUS 3160. Business Communications. (3)** Prerequisite: junior standing. The nature and problems of individual, interpersonal and organizational communication in business. Various verbal techniques such as presentations, graphics, public speaking and writing will be developed and practiced for effective organizational and individual performance.

(434) **BUS 3234. Business Information Systems Development. (3)** Prerequisites: BUS 2130, 3130, 3140 or permission of the Department. An examination of the systems development process from a managerial perspective. The objective is to provide an understanding of the concepts, processes and techniques involved in successfully moving through the systems development life cycle. An emphasis will be placed on understanding the advantage of using structured techniques to overcome the complexities involved in systems development.

(436) **BUS 3236. Business Decision Support Systems. (3)** Prerequisites: BUS 2130, 3120, 3130, 3140 or permission of the Department. A study of the application of the computer as a tool to the decision making of top level managers. Principles of developing and utilizing such systems will be studied. Emphasis is placed upon computer assistance with specific upper level decisions and decision makers. Students will utilize "packaged" software for specific development projects.

(460) **BUS 3280. Business Policy. (3)** Prerequisites: all other required business core courses. (Accounting majors are required to take as prerequisites only those Business Administration and Economics courses required for the B.S. degre in Accounting.) Concerns the role of top management of the firm in integrating internal functions and environmental forces. Emphasis on defining economic, technical, ethical, political and social factors affecting the firm and their consideration in setting goals and operating policies.

BUSINESS ELECTIVES

(401) **BUS 3201. Advanced Operations Management. (3)** Prerequisite: BUS 3100. This course, through cases and/or management simulations, will enable the student to apply the knowledge attained in Operations Management. The student, through an application forum, should develop in greater depth his/her understanding of the operating functions of an organization.

(430) **BUS 3202. Advanced Business Analysis. (3)** Prerequisite: BUS 3100. A study of more advanced probabilistic business problems with extensive use of canned computer programs and preparing system models. The course will center on the application of decision theory to business problems.

(431) **BUS 3203. Management Science. (3)** Prerequisite: BUS 3100. An analytical approach toward understanding the management process and solving management problems. Emphasis will be placed on exploring existing models, but the student should develop an insight for problem development and model building.

(410) **BUS 3210. Marketing Research and Analysis. (3)** Prerequisite: BUS 3110. The research course will provide the student with an understanding of marketing research and its usefulness in the organization. The course will deal with scientific marketing research methods with emphasis on collection, analysis and interpretation of data as applied to the solution of marketing problems.

(411) **BUS 3211. Advertising Management. (3)** Prerequisite: BUS 3110. This course will cover all areas of marketing promotion, including such topics as advertising, media selection, packaging and forms of sales promotion. This course will offer basic skills and techniques to allow the student to enter careers in advertising or media.

(412) **BUS 3212. Retailing Management. (3)** Prerequisite: BUS 3110. Presents retailing as a part of the marketing distribution phase of a total interacting marketing system. Key concepts covered include consumer and market analysis, store location, store layout, merchandising, pricing and promotional issues and problems. Also considered are legal and environmental implications. The emphasis is on application of class concepts through case analysis and class discussion.

(413) **BUS 3213. Personal Selling and Sales Management. (3)** Prerequisite: BUS 3110. An overview of the skills and knowledge involved in individual selling and the management of sales programs. The course emphasizes sales and sales management theories and their applications.

(419) **BUS 3219. Marketing Strategy. (3)** Prerequisites: BUS 3110 and senior standing. Integration of all marketing elements in a strategic planning framework. Emphasis on areas of strategic importance, especially those which have significant implications and relevance for marketing policy decisions in competitive situations.

(420) **BUS 3220. Financial Analysis. (3)** Prerequisite: BUS 3120. Emphasis on interpretation of financial statements and other data for internal management purposes as well as external applications for commercial credit decisions (domestic and foreign). Practical application is stressed through the use of cases and other techniques such as class presentations.

(421) **BUS 3221. Financial Institutions and Markets. (3)** Prerequisite: BUS 3120. A study of financial institutions and money and capital markets which considers their roles in the intermediation process. Special emphasis is focused on the comparative financial policies of financial institutions considered in the context of their market environments.

(422) **BUS 3222. Investments. (3)** Prerequisite: BUS 3120. Major topics are security analysis and portfolio management. The viewpoint is that of the investment professional concerned with evaluation of individual securities and management of security portfolios.

(423) **BUS 3223. International Financial Management. (3)** Prereuisite: BUS 3120. Viewpoints are those of the senior financial officer of a corporation involved in international business and of the international officer of a commercial bank. Topics include the financing of exports and imports, financing of foreign operations, problems of foreign exchange rates and the impact of accounting procedures on financial management.

(424) **BUS 3224. Advanced Financial Management. (3)** Prerequisite: BUS 3120. Advanced study of the theories and techniques of financial management as they relate to the goal of the financial manager: the maximization of the value of the firm. Topics include financial planning, valuation, financial instruments, financial structure, and capital budgeting.

(440) **BUS 3240. Leadership and Organizational Behavior. (3)** Prerequisite: BUS 3140. A managerial perspective of the influence of leadership, motivation, group dynamics, structure, communications, conflict and change on effective utilization and development of human resources with emphasis on the role of a leader as a change agent. Case analysis, role playing and skills development exercises are used to simulate actual situations.

(441) **BUS 3241. Personnel Administration. (3)** Prerequisite: BUS 3140. The study of effectively selecting, utilizing, assessing and developing managers as well as the role of the personnel department in administering human resources in a changing and demanding environment. Experience in developing and utilizing behavioral science research methods to assess effectiveness.

(450) **BUS 3250. Business Law II. (3)** Prerequisite: BUS 3150. The study of the Uniform Commercial Code. Subjects covered include sale of goods, commercial paper, bank deposits and collections, letters of credit, bulk transfers, documents of title, investment securities and secured transactions.

(452) **BUS 3252. Construction Law. (3)** Prerequisite: junior standing. This course examines the legal problems encountered by architects, engineers, contractors, owners, sureties and lenders involved in the construction process. Special emphasis is placed on the legal rights and liabilities of the various participants in construction projects. Claims preparation, negotiation, arbitration and litigation methods of dispute resolution.

(473) **BUS 3273. Small Business Management. (3)** Prerequisites: BUS 3100, 3110, 3120, 3140; junior standing. Consideration of opportunities and obstacles of starting and operating a small business. Emphasis will be on integrating all managerial requirements (financial, marketing, operation, legal, logistics, accounting and behavioral) of owning and operating a small business. Study of opportunities and assistance provided by franchises, federal, state and local agencies. Practice in solving small business problems will be gained through case analysis.

(474) **BUS 3274. International Business Processes and Problems. (3)** Prerequisite: junior standing. An introduction to the process, institutions and problems associated with exporting, importing and management of multinational businesses.

GENERAL ELECTIVES

(230) **BUS 2130. Introduction to Business Computing. (3)** Prerequisite: MAT 1101 or equivalent; sophomore status. Introduction of computer methods to solve business problems. Emphasis on understanding fundamental hardware and software concepts, selecting and using appropriate hardware and software needed for making various business decisions, and developing practical methods for using the computer to solve quantitative business problems. (May not be taken for upper-level credit in business, but may be taken for general university credit.)

(390) **BUS 3000. Topics in Business. (3)** Prerequisite: consent of the instructor and junior standing. Topics from the area of Management and Administration. The course may be repeated for credit.

(351) **BUS 3151. Employment Law. (3)** Prerequisite: junior standing. This course examines the legal principles and legislation which control employment decisions in union and non-union settings. Topics covered include fair employment practices, anti-discrimination law, representation elections, unfair labor practices and dispute settlement processes. (Same as ECO 3107.)

(361) **BUS 3161. Advanced Business Communications. (3)** Prerequisites: BUS 3160, junior standing. Advanced course in oral and written communications, with emphasis on tailoring messages to a variety of business situations. Communication theory will be translated into practice through in-class exercises, the delivery of several speeches, and the preparation of an analytical report appropriate to the student's chosen field.

(370) **BUS 3170. Personal Finance. (3)** Prerequisite: junior standing. A course in the management of personal and family financial affairs. Topics include family financial planning and budgeting, saving for financial emergencies, consumer purchases and the use of credit, security and real estate investments, protection against premature death or disability, providing retirement income, insurance needs, income and estate tax planning.

(371) **BUS 3171. Principles of Insurance. (3)** Prerequisite: junior standing. A study of the different types of nonspeculative risks faced by individuals and businesses and the possible alternative methods of treating such risks. An examination of the specific application of these methods in regard to life, health, property, casualty and liability insurance contracts.

(372) **BUS 3172. Real Estate. (3)** Prerequisite: junior standing. A survey of problems involved in the acquisition, management and transfer of real estate. Topics include real estate contracts and leases; deeds, mortgages and other liens; real estate brokerage; appraisals and financing; taxation; and government regulations.

(490) **BUS 3800. Directed Study. (1 to 6 hrs. credit)** Prerequisite: consent of the Department and junior standing. Enrollment granted only by permission of the faculty with whom the work will be performed. The student's work assignments will be designed by the student and faculty member who will oversee the project of study. The credit hours will be determined prior to enrollment and will be based on the particular project undertaken.

Department of Economics

Chairperson: Professor Davis
Professor Emeritus: Wubben
Associate Professors: Amato, Connaughton, Rogers, Liner, Madsen, Schwarz, Zuber
Assistant Professors: Gandar, Miller, Tucker
Lecturers: Fox, Graham, Jones, McGregor

The Department of Economics offers two courses of study leading to a B.A. degree. Students may select a major in Economics with either business administration electives or social science electives.

MAJOR IN ECONOMICS WITH BUSINESS ADMINISTRATION ELECTIVES

A major in Economics, with business administration electives, leading to the B.A. degree consists of 60 hours specified as follows:

I. *Mathematics:*

Basic Concepts of Mathematics (MAT 1101)* 3
Calculus (MAT 1120)* 3
Elements of Statistics (MAT 1220) 3
Business Computing (BUS 2130) 3

II. *Economics:*

Principles of Economics (ECO 2101 and 2102)** 6
Economics of the Firm (ECO 3125) 3
Econometrics (ECO 3112) 3
Industrial Organization & Public Policy (ECO 4180) 3
Two of the Following:
- Money and Banking (ECO 3115)
- Microeconomic Analysis (ECO 3122)
- Macroeconomic Analysis (ECO 3123) 6

III. *Business Administration and Accounting:*

Principles of Accounting (ACC 2121 and 2122) 6
Financial Management (BUS 3120) 3
Two of the Following:
- Marketing Management (BUS 3110)
- Business Law I (BUS 3150)
- Operations Management (BUS 3100)
- Management Concepts and Practices (BUS 3140) 6

IV. *Economics Electives:*

To be selected by the student from the 3000 and 4000-level offering of the Department of Economics 12

In computing the quality point average in the major or minor all required courses are included.

Not more than one grade of *D* will count toward the specified hours for a major in economics. No economics course can be repeated more than once to improve the grade in the course.

**Will satisfy general University requirement for mathematics or foreign languages.*
***Will satisfy general University requirement for social science.*

It is recommended that students who plan to take graduate work in economics take additional work in mathematics and consult with their advisers concerning the recommendation.

MAJOR IN ECONOMICS WITH SOCIAL SCIENCE ELECTIVES

A major in Economics, with social science electives, leading to the B.A. degree consists of 60 hours specified as follows:

I. *Mathematics:*

Basic Concepts of Mathematics (MAT 1101)* 3
Calculus (MAT 1120)* 3
Elements of Statistics (MAT 1220) 3
Business Computing (BUS 2130) 3

II. *Economics:*

Principles of Economics (ECO 2101 and 2102)** 6
Microeconomic Analysis (ECO 3122) 3
Macroeconomic Analysis (ECO 3123) 3
Econometrics (ECO 3112) 3
History of Economic Thought (ECO 4177) 3

III. *Social Science Electives:*

Course work to be selected from at least three of the following disciplines: anthropology, criminal justice, geography, history, political science, psychology, sociology 15

IV. *Economic Electives:*

To be selected by the student from the 3000 and 4000-level offerings of the Department of Economics 15

In computing the grade point average in the major all required courses are included.

Not more than one grade of *D* will count toward the specified hours for a major in economics.

No economics course can be repeated more than once to improve the grade in the course.

It is recommended that students who plan to take graduate work in economics take additional work in mathematics and consult with their advisers concerning the recommendation.

MINOR IN ECONOMICS

A minor in Economics requires: 18 semester hours of Economics to include ECO 2101, 2102 and either 3125 or 3122, and at least nine hours at the 3000 or 4000-level excluding 3102 and 3103. A minimum GPA of 2.0 is required in the 18 hours.

In computing the grade point average in the minor all required courses are included.

Not more than one grade of D will count toward the specified hours for a minor in economics. No economics course can be repeated more than once to improve the grade in the course.

**Will satisfy general University requirement for mathematics or foreign languages.*
***Will satisfy general University requirement for social science.*

B.A. IN ECONOMICS WITH BUSINESS ADMINISTRATION ELECTIVES

Freshman Year

English 1101	3	English 1102	3
Mathematics 1110	3	Mathematics 1120	3
Laboratory Science	4	Laboratory Science	4
Humanities	3	Humanities	3
General University Elective	2	General University Elective	2
	15		15

Sophomore Year

Principles of Economics (ECO 2101)	3	Principles of Economics (ECO 2102)	3
Introduction to Business Computing (BUS 2130)	3	Principles of Accounting (ACC 2122)	3
Principles of Accounting (ACC 2121)	3	Elements of Statistics (MAT 1220)	3
General University Electives	6	General University Electives	6
	15		15

Junior Year

Econometrics (ECO 3112)	3	Economics of the Firm (ECO 3125)	3
Microeconomic Analysis (ECO 3122) or Money and Banking (ECO 3115)	3	Macroeconomic Analysis (ECO 3123) or Money and Banking (ECO 3115)	3
Economics Elective	3	Economics Elective	3
General University Electives	6	Business Elective	3
		General University Elective	3
	15		15

Senior Year

Industrial Organization and Public Policy (ECO 4180)	3	Economics Elective	3
Financial Management (BUS 3120)	3	Business Elective	3
Economics Elective	3	General University Electives	9
General University Electives	6		
	15		15

*Will satisfy general University requirement for mathematics or foreign language.
**Will satisfy general University requirement for social science.

B.A. IN ECONOMICS WITH SOCIAL SCIENCE ELECTIVES

Freshman Year

English 1101	3	English 1102	3
Mathematics 1110	3	Mathematics 1120	3
Laboratory Science	4	Laboratory Science	4
Humanities	3	Humanities	3
General University Elective	2	General University Elective	2
	15		15

Sophomore Year

Principles of Economics (ECO 2102)	3	Principles of Economics (ECO 2102)	3
Introduction to Computers (CSC 1101) or Algorithmic Languages I (CSC 1100)	3	Elements of Statistics (MAT 1220)	3
Social Science Elective	3	Social Science Elective	3
General University Electives	6	General University Electives	6
	15		15

Junior Year

Microeconomic Analysis (ECO 3122)	3	Macroeconomic Analysis (ECO 3123)	3
Econometrics (ECO 3112)	3	Economics Elective	3
Social Science Elective	3	Social Science Elective	3
General University Electives	6	General University Electives	6
	15		15

Senior Year

Economics Electives	6	History of Economic Thought (ECO 4177)	3
Social Science Elective	3	Economics Electives	6
General University Electives	6	General University Electives	6
	15		15

COURSE DESCRIPTIONS

Courses for Undergraduates

ECO 1090. Topics in Economics. (1-3) Consideration of topics from the areas of economic theory, economic development, consumer economics, welfare economics and current economic problems. May be repeated for credit as topics vary.

(101) **ECO 1101. Economics for Non-Majors. (3)** Economic issues without emphasis on theoretical models. Contemporary economic issues such as pollution control, consumer protection and the energy crisis. May not be taken for credit if credit has already been received for either ECO 2101 or 2102.

(201) **ECO 2101. Principles of Economics-Macro. (3)** Scope and methodology of economics as a social science, the measurement of national income, the theory of national income determination, money and banking, monetary and fiscal policy, and international economics.

(202) **ECO 2102. Principles of Economics-Micro. (3)** Pricing mechanism of a market economy, the industrial organization of the U.S. economy, problems of economic concentration, the theory of income distribution, and comparative economic systems.

(390) **ECO 3090. Topics in Economics. (3)** May be repeated for credit. Prerequisite: consent of the Department. Topics from the areas of economic theory, economic development, consumer economics, welfare economics and current economic problems.

(302) **ECO 3102. Consumer Economics. (3)** Economic analysis of consumer issues with emphasis on economic decision making. Topics include consumer protection and government regulation, determination of family income, advertising, health care, inflation, taxation, and investment decisions. May not be taken for upper-level credit in business or economics, but may be taken for general University credit.

(303) **ECO 3103. Economic Concepts. (3)** Microeconomic and macroeconomic concepts for students without prior courses in economics who plan to enter MBA program. The scope and method of economics, the pricing mechanism of markets, the industrial organization of the U.S. economy, the measurement of national income, the theory of national income determination, money and banking, and monetary and fiscal policy. Credit will not be given for ECO 3103 where credit has been given for ECO 2101 or ECO 2102.

(305) **ECO 3105. Industrial Relations. (3)** Prerequisite: introductory course in economics or consent of instructor. Systematic analysis of the sociological, economic and legal forces affecting the work environment. Emphasis on the impact of labor unions, law and the impact of labor unions.

(306) **ECO 3106. Labor Economics. (3)** Prerequisite: ECO 22101 and 2102. Economics of labor markets with emphasis on wage and employment theory, collective bargaining, and human capital theory. Historical and legal forces affecting labor markets.

(307) **ECO 3107. Employment Law. (3)** Legal principles and legislation which control employment decisions in union and non-union settings. Topics include fair employment practices, antidiscrimination law, representation elections, unfair labor practices and dispute settlement processes. (Same as BUS 3151.)

(312) **ECO 3112. Econometrics. (3)** Prerequisites: ECO 2101 and 2101, MAT 1120 and 1220, and BUS 2130. Econometric techniques including simple and multiple least squares regression with problems and analyses.

(314) **ECO 3141. Research Methods. (3)** Prerequisites: MAT 1220, BUS 2130, and ECO 3112 or 3117. Introduction to research in economics including major sources of data and information with emphasis on application of elementary research methods to economic problems.

(315) **ECO 3115. Money and Banking. (3)** Prerequisite: ECO 2101. The characteristics and functions of money in the modern economy, monetary theory and policy, and financial institutions.

(317) **ECO 3117. Business and Economic Forecasting. (3)** Prerequisite: ECO 2101 and 2102, MAT 1120 and 1220, and BUS 2130. Analysis of fluctuations in economic activity, including production, employment, prices and industry sales. Topics include forecasting methods, business cycle theories, historical record, industry and sales forecasting.

(322) **ECO 3122. Microeconomic Analysis. (3)** Prerequisite: ECO 2101 and 2102 and MAT 1120. Microeconomic analysis with emphasis on consumer theory and the theory of production. Resource allocation and the determination of optimum output and pricing by a firm operating under various market structures. Distribution and welfare theories.

(323) **ECO 3123. Macroeconomic Analysis. (3)** Prerequisites: ECO 2101 and 2101 and MAT 1120. Analysis of economic aggregates with inflation, unemployment, and income determination. Keynesian, Classical, Monetarist, and supply side models.

(325) **ECO 3125. Economics of the Firm. (3)** Prerequisites: ECO 2102, MAT 1120 and MAT 1220. Economic decisions of particular interest to business firms. Topics include demand theory and forecasting; cost analysis and pricing policies.

ECO 3131. Economic History of the United States. (3) Prerequisite: ECO 1101 or 2101 or 2102. Use of economic models to further understanding of the growth and development of the U.S. economy from colonial times to the Great Depression. Emphasis on the sources and consequences of American growth, with particular emphasis on technoloical, demographic, and institutional changes.

ECO 3133. Economic History of Europe. (3) Prerequisite: ECO 1101 or 2101 or 2102. Use of economic models to further understanding of the economic development of Europe from the early modern period to the present. Emphasis on the demographic, institutional, and technological changes underlying the process of economic growth and the impact of European economic growth on the rest of the world through international trade, investment, and migration.

(370) **ECO 3170. Monetary and Fiscal Policy. (3)** Prerequisite: ECO 2101. Monetary and fiscal policy of the context of the U.S. economy, the impact of monetary and fiscal policy on employment; economic growth and price stability.

(375) **ECO 3175. Comparative Economic Systems. (3)** Prerequisite: ECO 2102. Compares and contrasts capitalism, socialism, and communism both in theory and practice.

(395) **ECO 3895. Directed Individual Study.** (Variable credit 1-3 hours. May be repeated for credit.) Prerequisites: permission of the instructor and the Department. Independent study of a theoretical and/or policy problem in a special area of economics. The student can pursue a particular program to a depth much greater than can be undertaken within the scope of existing courses. The topics of the investigation may originate from the student or from the faculty member who will supervise the study.

Courses for Advanced Undergraduates and Graduate Students*

(400) **ECO 4100. Mathematical Economics. (3) (3G)** Prerequisites: ECO 2101 and 2102 and MAT 1120. Both microeconomic and macroeconomic problems are analyzed with quantitative techniques. Emphasis is given to the study of methods for mathematically formulating economic relationships including the tools used for finding maximums, minimums and limits to single, recursive and simultaneous economic relationships.

(405) **ECO 4105. Negotiations and Bargaining Strategy. (3) (3G)** Prerequisites: ECO 2102 and 3105. Theories of negotiation strategy. Emphasis on the negotiation of collective bargaining contracts. Topics include the use of arbitration, mediation, conciliation and fact-finding boards to resolve disputes.

(412) **ECO 4112. Econometrics II. (3)(3G)** Prerequisites: ECO 3112 or consent of instructor. Tools of analysis are more extensive and of a greater depth than those studied in ECO 3112 which allow study of problems of greater complexity. Regression and correlation techniques are applied to economic and business problems derived from government and business environments.

(416) **ECO 4116. Public Finance. (3) (3G)** Prerequisites: ECO 2101 and 2102. Revenue and expenditure problems of governmental units, intergovernmental financial relationships and the impact of federal fiscal policy upon the American economy.

**Additional work required for students receiving graduate credit.*

(435) **ECO 4135. Economics of Development. (3)(3G)** Prerequisite: ECO 2102. Theories of economic growth and development applied to varying economic and social systems. Current theoretical models and their relevance to efficient allocation of resources to both the developed and the developing nations.

(450) **ECO 4150. Urban and Regional Economics. (3)(3G)** Prerequisite: ECO 2102. Spatial and economic organization of cities and regional areas and their special economic problems. Topics include economic growth, urban location and land use, poverty, housing, public finance and urban transportation.

(460) **ECO 4160. Economics of Transportation. (3) (3G)** Prerequisite: ECO 2102. Analysis of the transportation systems. Topics include historical development of the various modes, costs and rate-making, regulation and national transportation policy.

(471) **ECO 4171. Economics of International Trade. (3) (3G)** Prerequisite: ECO 2101 and 2102. Theory of international trade. Topics include determination of international trade patterns, welfare implications of international trade, economic integration, and the effects of tariffs and quotas.

(472) **ECO 4172. Economics and International Finance. (3) (3G)** Prerequisite: ECO 2101 and 2102. Survey of international monetary theory. Topics include exchange rate determination, balance of payments and adjustment, international liquidity, capital movements, international financial organizations and monetary reform proposals.

(477) **ECO 4177. History of Economic Thought. (3) (3G)** Prerequisite: ECO 2101 and 2102. History of economics as a science and the evolution of theories of value, distribution and employment. Topics include Adam Smith, Thomas Matthews, David Ricardo, Karl Marx, Alfred Marshall, Thorstein Veblen, and John Maynard Revnes.

(480) **ECO 4180. Industrial Organization and Public Policy. (3) (3G)** Prerequisite: ECO 2102. An examination of the characteristics of monopolistic competitive, oligopoly, and monopoly and questions of public policy in dealing with problems created by industrial concentration.

(481) **ECO 4181. Energy and Environmental Economics. (3)(3G)** Prerequisite: ECO 2102. Introduction to the economic issues of both energy and environment. Energy issues include the historical development of energy resources, supply and demand considerations and projections of the future energy balance. Environmental issues are externalities, common property resources and government regulation. Policy considerations include environmental standards, pollution charges and property rights. Cost-benefit analysis and microeconomic theory are applied.

(482) **ECO 4182. Public Utilities. (3) (3G)** Prerequisite: ECO 2102. Economic issues of public utilities, with emphasis on the theory and methods of rate-making and regulation.

(449) **ECO 4449. Work-Study Program in Economics. (3 to 6 or 3G to 6G hours credit, by determination of Department of Economics.)** Prerequisites: ECO 2101 and 2102. Enrollment granted only by permission of a faculty committee from the Department of Economics. Prior to enrollment, plans for the student's work assignments in this course must be completed. Assignments in government utilities, banking and other paid employment must utilize the techniques and principles learned in core requirements in economics. Work assignments require enough faculty contact with the student and employer to insure satisfactory performance by the student. A maximum of three hours can be used to meet upper-level economics elective requirements.

(590) **ECO 5090. Topics in Economics. (1-3)(1G-3G)** Prerequisite: consent of the Department. Topics from various areas of economics. Credit hours will vary with the topic offered. May be repeated for credit as topics vary.

(502) **ECO 5102. American Economics Development. (3) (3G)** No prerequisites. A course primarily designed for public school teachers. Emphasis on issues and examples that lend themselves to classroom presentation. Includes the development, meaning and functioning of the institutions which characterize the American economy. May not be taken for upper-level elective credit in business or economics but may be taken for general University elective credit by College of Business majors and others. Not accepted for graduate credit in the MBA program.

College of Education and Allied Professions

Dean: Professor Heller

The College of Education and Allied Professions is composed of the Departments of Curriculum and Instruction, Educational Administration, Health and Physical Education, and Human Services and ROTC programs in Air Force Aerospace Studies and Army Military Science. The Bachelor of Arts degree in Education is offered in the Department of Curriculum and Instruction and the Bachelor of Arts degree in Human Development in the Department of Human Services and the Master of Education and Master of Human Development and Learning degrees are offered by the College. In addition, the Certificate of Advanced Study (Sixth Year) program is offered by the College in specified certification areas.

The Bachelor of Arts degree in Education is designed for the preparation of early childhood, intermediate, and middle grades teachers within the Department of Curriculum and Instruction. Certification can be added in English as a Second Language and Special Education. Within the Department of Human Services, the Bachelor of Arts degree in Human Development and Learning is designed for the preparation of child and family development specialists, program directors for community agencies, infant and day care coordinators, human services specialists, and other related personnel for a variety of human service professions. In addition, the Department of Curriculum and Instruction offers a professional sequence leading to teacher certification for individuals who major in an academic area and plan to teach at secondary levels.

The Master of Education degree is designed to provide sound programs of graduate professional study for advanced certification which are built upon a body of knowledge and experience common to several types of professional needs and expertise. Graduates of these programs will be able to employ expertise in a variety of ways: (a) as teachers in the primary grades, intermediate grades, middle grades, secondary grades, special education, reading, English as a second language, and health education; (b) as administrators and support personnel in the areas of administration and supervision; curriculum and instruction; school counseling; and (c) as students in programs for advanced study and doctoral programs. Courses appropriate for teacher certification renewal, additional graduate certification fields, or special needs for individual professional growth also are available.

Beyond the master's level, the College offers Certificate of Advanced Study programs in the following areas: Counseling and Guidance; Elementary Education (Early Childhood and Intermediate); School Administration; Secondary Education (English, Mathematics and History); Curriculum and Instruction Specialists (Supervision), and Special Education. These programs are planned to meet the guidelines of the North Carolina State Board of Education and persons who successfully complete a program will be granted a Level II Graduate Certificate in their field of study.

The Master of Human Development and Learning degree is designed to provide graduate professional study leading to an advanced degree in Agency Counseling. Graduates of this program will be able to employ their expertise in a variety of settings including mental health and other community agencies.

The College collaborates with The University of North Carolina at Chapel Hill to offer the Doctor of Education in Educational Administration. The degree is conferred by The University of North Carolina at Chapel Hill.

The Aerospace Studies and Military Science programs are organized in accordance with the regulations of their respective military branches and the rules and regulations of The University. Successful completion of either program will qualify the student to serve as a commissioned officer in the respective branch of service. All students in these programs pursue majors in one or more of the degree programs offered by The University or one of the institutions of higher education in the Charlotte Area Educational Consortium.

In addition, the College has the capacity to offer basic study in the field of library science. The courses listed in the catalog are not offered routinely and will be offered only when there is documented need and demand for a course and/or courses.

SERVICES AND SPECIALIZED RESOURCES

Graduates Seeking Certification. Special students who have already completed a baccalaureate degree may be admitted to The University for teacher certification purposes. Specific courses and activities necessary for certification will be determined upon an evaluation of the person's credentials by the Dean's Office, College of Education and Allied Professions. This evaluation will take into account the student's prior preparation in accordance with the guidelines of The University's approved program in teacher education. A plan of study leading to certification will be developed with the student and a copy of the approved plan filed with the State Department of Public Instruction.

Curriculum and Instructional Materials Center. The Center provides a laboratory for students and faculty to study and experiment with curriculum and instructional materials and methods. Included in the Center are over 2,500 elementary and secondary textbooks, a file of standardized tests, several hundred educational games and simulations, a collection of professional education books, pamphlets and periodicals, curriculum guides from school systems throughout the country, and numerous other resources for the teacher education professions.

Educational Media and Technology Laboratory. The College of Education and Allied Professions provides a variety of courses and laboratory experiences to prepare students to effectively use contemporary communications media and technology. Students receive instruction and hands-on experiences in using instructional design, photography, display techniques, overhead transparencies, motion pictures, microcomputers, interactive instruction, television and other media to enhance teaching and communications skills. The Laboratory houses microcomputers, printers, an interactive video instructional system, and a variety of educational applications software. The Laboratory is equipped for black and white film development and processing, production of overhead transparencies, video tape production and viewing, dry mounting and laminating of educational materials, and educational slide copying and editing.

Atkins Library and Media Services. The University Library maintains an extensive collection of professional education books, periodicals and reserve documents representing all subject areas and grade levels. It subscribes to approximately 500 education related periodicals and maintains a vertical file containing non-catalogued education materials. The Library is a government documents depository.

Media Services provides students and faculty with audiovisual teaching and learning resources. An extensive collection of audiovisual equipment, 800 motion picture films, and graphic and television production services are available for students and faculty. Instruction is provided in the preparation and use of audiovisual media and equipment.

Teacher Placement. The Placement Office in the Division of Student Affairs, in cooperation with the College of Education and Allied Professions, provides placement services for qualified graduates. All students in educational programs are urged to file their credentials in the Placement Office. This service provides a quick and convenient means for requesting and mailing credentials to prospective employers. Many prospective employers use the Placement Office to announce and recruit for their openings.

NORTH CAROLINA TEACHER CERTIFICATION

Undergraduate. North Carolina currently provides for four types of teacher certification based upon the completion of approved baccalaureate degree programs: Early Childhood (kindergarten through fourth grade), Intermediate (grades four through six), Middle Grades (grades six through nine), and Secondary (grades nine through 12). Students selecting Early Childhood, Intermediate and Middle Grades Certification major in Education whereas those who select Secondary Certification major in academic disciplines within the College of Arts and Sciences. North Carolina also provides special subjects certification (kindergarten through grades 12) in certain teaching fields such as art, dance, and special education. Students seeking certification in art or dance major in the appropriate area in the College of Arts and Sciences.

Graduate. North Carolina currently provides for graduate level certification based upon the completion of approved master's degree programs. The graduate certification may be of the same type or field received at the completion of a baccalaureate degree program or it may be in a special service personnel area such as Administration, Supervision, Counseling and Guidance, Reading, or

Special Education. Students electing graduate certification in Early Childhood Education, Intermediate Education, Middle Grades Education and the special service personnel areas major in Education and pursue a Master of Education degree program. Students who select Secondary certification areas generally will major in Education but may elect to major in a graduate program within the College of Arts and Sciences in disciplines specific to the certification sought.

Advanced Graduate. North Carolina currently provides for Certificate of Advanced Study certification based upon the completion of approved programs of study beyond the master's degree. The Certificate of Advanced Study may be in a teaching field or one of the special service personnel areas. At UNCC, students electing the Certificate of Advanced Study programs are admitted and enrolled in the College of Education and Allied Professions. Formal coordination is maintained with other appropriate departments and colleges which provide course work needed in many of the Certificate of Advanced Study programs.

Department of Curriculum and Instruction

Chairperson: Associate Professor Huffman
Professor: Sud
Associate Professors: Green, Gretes, Hoyle, Mork, Roberts, Rose
Assistant Professors: Calhoun, Clark, Conwell, Edwards, Sadoff, Schaffer, Whaley, White, Wolfe
Visiting Assistant Professors: Beattie, Spooner, Test
Lecturer: Sapp

The Department offers programs leading to the Bachelor of Arts and the Master of Education degrees with undergraduate and graduate teaching certification. In addition, the Department offers course work leading to teaching certification at the secondary levels for students in the College of Arts and Sciences. The Certificate of Advanced Study (sixth year) is offered in five areas.

THE BACHELOR OF ARTS DEGREE

The Department offers B.A. degree programs for students intending to become teachers at the Early Childhood (kindergarten through fourth grade), Intermediate (fourth through sixth grade), Middle Grade (sixth through ninth grade) or secondary (ninth through twelfth grade) levels. Certification may also be added in English as a Second Language and in Special Education.

Each program leading to the Bachelor of Arts degree in Education has the following components:

I. GENERAL STUDIES COMPONENT

The general degree component is intended to provide a foundation for preparation in the student's area of specialization, to support the professional studies component, and to provide the student with the knowledge and skills generally needed by educated persons. This foundation is designed to include exposure to science, mathematics, creative arts, English, history and the social sciences, and health, physical education and safety.

II. PROFESSIONAL EDUCATION COMPONENT

The purpose of the professional education component is to provide the general professional competence required of *all* teachers. This component provides for the development of knowledge and skill in understanding the role of the teacher and of education in our society, planning for instruction, classroom management, and the evaluation of pupil progress and instruction.

III. AREAS OF SPECIALIZATION COMPONENT

The specialization component is intended to provide the prospective teacher with the skills and knowledge uniquely applicable to the particular level of certification sought. Each of the four specializations (K-4, 4-6, 6-9, 9-12) is differentiated in terms of the developmental stages of the children with whom the prospective teacher will be working as well as the knowledge of content that would qualify the teacher to provide instruction at those levels.

ADMISSION TO PROFESSIONAL EDUCATION SEQUENCE

Students should obtain an application for formal admission to a teacher education program in the Department of Curriculum and Instruction. Admission to the professional education program will be contingent upon the student having met the following criteria:

a. an overall GPA of 2.25 and a minimum of 30 semester hours.
b. a grade of C or better in EDU 2100
c. approval signatures from advisor(s), program coordinators, and department chairperson,
d. scores of 631 and 636 respectively on Core I and II of the National Teacher Examination (NTE)

JUNIOR YEAR TRANSFER AND IRREGULAR CERTIFICATION

Students should follow the procedures outlined above. The application for admission should be completed during the first semester in which the student is enrolled at UNCC.

Retention in Professional Education Sequence. Retention in the Teacher Education program will be contingent upon the student's maintenance of the following criteria:

1. A GPA of 2.75 or better in professional education courses and a GPA of 2.75 in the area of specialization.
2. A grade of C or better in all professional education courses and the area of specialization; and
3. An overall GPA of 2.5 or above.

THE PROFESSIONAL EDUCATION SEQUENCES

Elementary Education. This program track is designed for students who intend to become teachers at the elementary school level by seeking certification in Early Childhood (K-4) or Intermediate (4-6) education. Degree requirements include 30 semester hours of professional studies, a 34 semester hour area of specialization, 12 to 15 semester hours of electives, and satisfaction of 52 semester hours of general studies requirements at the K-4 level and 55 semester hours of general studies requirements at the 4-6 level.

SAMPLE SCHEDULE
ELEMENTARY EDUCATION PROGRAM
K-4 EARLY CHILDHOOD CERTIFICATION
(131 Semester Hours)

First Semester

ENG 1101	3
BIO 1110+L	4
Geography	3
Political Science	3
Elective	3
	16

Second Semester

ENG 1102	3
ES 1101+L	4
American History	3
PSY 1101	3
Sociology	3
	16

Third Semester

PSY 2109	3
Creative Arts	3
MAE 2101	4
EDU 2100	3
EDU 2110	3
	16

Fourth Semester

EDU 2150	3
Creative Arts	3
MAE 2102	4
Elective	3
SED 3160	3
	16

Fifth Semester

CFD 3115 (K-4)	3
EDU 3100	3
PHY 1150	4
EDU 3150 +L	4
MAE 2103	3
	17

Sixth Semester

PED 3233	3
RDG 3151	3
EDU 3151 +L	4
ENG 3103	3
EDU 3120	3
Elective	3
	19

Seventh Semester

HED 3101	3
EDU 3152 +L	4
NC History	3
ECO 5102	3
Electives	6
	19

Eighth Semester

EDU 3460	12

SAMPLE SCHEDULE
ELEMENTARY EDUCATION PROGRAM
4-6 INTERMEDIATE CERTIFICATION
(131 Semester Hours)

First Semester

ENG 1101	3
BIO 1110 +L	4
Geography	3
World History	3
Sociology	3
	16

Second Semester

ENG 1102	3
ES 1101 +L	4
Political Science	3
Elective	3
PSY 1101	3
	16

Third Semester

PSY 2109	3
HIS 1160	3
MAE 2101	4
EDU 2100	3
EDU 2110	3
	16

Fourth Semester

EDU 2150	3
Creative Arts	3
MAE 2102	4
Elective	3
SED 3160	3
	16

Fifth Semester

CFD 3115 (4-6)	3
EDU 3100	3
PHY 1150	4
EDU 3150 +L	4
Creative Arts	3
	17

Sixth Semester

PED 3233	3
RDG 5250	3
EDU 3151 +L	4
ENG 3103 or 3104	3
Elective	3
EDU 3120	3
	19

Seventh Semester

HED 3101	3
EDU 3152 +L	4
NC History	3
ECO 5102	3
MAE 2103	3
Elective	3
	19

Eighth Semester

EDU 3470	12

MIDDLE GRADES EDUCATION. This program is designed for students who intend to become teachers at the sixth through the ninth grade levels and seek middle grades certification in two of the following areas of concentration: communication skills, mathematics, science, social studies. Degree requirements include 41 hours of general studies, 27 hours of professional studies, 10 hours in the area of specializaion and 24-27 hours in each of the concentrations.

SAMPLE SCHEDULE FOR MIDDLE GRADES PROGRAM TRACK

First Semster

ENG 1101	3
BIO 1110 and 1110L	4
HIS 1160	3
MAT 1103	3
PSC 1110	3
	16

Second Semester

ENG 1102	3
ES 1101 and 1101L	4
CA	3
MAT 1222	3
GGY 1100	3
	16

Third Semester

PSY 1101	3
EDU 2100	3
Concentration I	12
	(15-18)

Fourth Semester

PSY 2109	3
HED 2101 or PED 2290	3
SPH 1101 or EDU 1110	3
Concentration I or II	9
	18

Fifth Semester

EDU 2110	3
SED 3160	3
Concentration I or II	9-12
	(15-18)

Sixth Semester

EDU 3186	3
EDU 3185-3185L	4
EDU 3120	3
Concentration I-II	6
	16

Seventh Semester

RDG 5250	3
Concentration I or II	*15
	18

Eighth Semester

EDU 3480	12
	12

*including Methods

SECONDARY EDUCATION. This sequence of coursework is designed for students in the College of Arts and Sciences who intend to become teachers at the ninth through twelfth grade levels and seek certification in an academic field. In addition to the major teaching field requirements, certification requirements include 27 hours of professional studies and 15 hours of coursework in the secondary specialization.

ADMISSION TO STUDENT TEACHING

The following criteria must be met in order to be admitted to student teaching:

1. be recommended by his/her advisers,
2. have completed prerequisite general studies, professional studies, and area of specialization requirements,
3. present a GPA of 2.75 or above in the area of specialization,
4. present a GPA of 2.75 or above in the professional studies sequence,
5. present an overall GPA of 2.50 or above and
6. have senior status with grades of "C" or above in all courses required for certification.

Additional Certification: Additional certification may be obtained in English as a Second Language or Special Education. Either ertification program must be added to one of the degree programs described above.

Requirements for English as a Second Language: The student will complete a 21-hour professional preparation sequence: Part I: Foundations (12 hours), ENG 3132, 4263, and 4166, and one course from the following: ENG 4165, ANT 4120, ANT 4090, or FL 4200; Part II: Professional Skills and Content (six hours), EDU 5101 and 5103 and Part III: Student Teaching (3 hours).

Requirements for Special Education: Students will complete a program of study leading to teacher certification in Mental Handicaps (K-12). Students should consult with their advisers. (SED 3160, 3170, 3180, 3190, 5130, 3490, PSY 5153 required.)

THE MASTER OF EDUCATION

The Department offers M.Ed. programs for students seeking teaching certification in Early Childhood Education, Intermediate Education, Middle Grades Education, Secondary Education, Special Education, English as a Second Language, and Reading Education.

Requirements for the Degree. The candidate for the Master of Education degree must successfully complete a minimum of 36 semester hours of work in courses approved for graduate credit including at least 18 hours in courses which are open to graduate students only.

In addition, all students must successfully complete either a written comprehensive exam or a master's project as a requirement for graduation. While these would be completed at or near the end of the student's program of study, the student should consult with the adviser within the first 12 hours of course work concerning procedures and preparaton for either option.

PROGRAMS

M.Ed. In Early Childhood Education. This program is designed for students seeking Graduate Teaching Certification at the kindergarten through fourth grade levels. The requirements are as follows: *Core Courses* (nine hours): EDU 6100, 6101, and 6120; *Professional Specialization* (12 hours): HSV 6102, RDG 5260 or 5270, EDU 6474, and 6475; *Cognate Field Electives* (six hours) and *Teaching Field Electives* (nine hours).

M.Ed. In Intermediate Education. This program is designed for students seeking graduate teaching certification at the fourth through sixth grade levels. The requirements are as follows: *Core Courses* (nine hours): EDU 6100, 6101, and 6120; *Professional Specialization* (nine hours): RDG 5260, or 5250, EDU 6474 and 6121; *Cognate Area of Specialization and Certification* (12 hours): The cognate fields of study are limited to those subjects taught in intermediate (4-6) schools. The student must have a total of 12 hours from one of the following areas: language arts, social studies, science, mathematics, art, music, physical education or Health. The specialization also may be in one field such as history or biology. One area of certification requires 12 hours; two areas of certification require 18 hours, nine hours in each area. *Teaching Field Electives* (six hours).

M.Ed. In Middle Grades Education. This program is designed for students seeking graduate teaching certification at the sixth through ninth grade levels. Degree requirements include nine hours of required core courses (EDU 6100, 6101, and 6120 or 6109 or 6150), nine hours of professional specialization (EDU 6220, 6225, 6473) which includes an internship experience, twelve hours in a content field (communication skills, mathematics, science, social studies), and six hours of electives.

M.Ed. In Curriculum and Instruction (Secondary Education). This program is designed for students seeking graduate certification at the ninth through twelfth grade levels. The requirements are as follows: *Core* (12 hours): EDU 61200, 6101, 6120, 6475 and electives (six hours). and *Cognate electives from certification field* (18 hours).

M.Ed. In Teaching English as a Second Language. This program is designed to train both TESL specialists and regular classroom teachers seeking additional expertise in TESL at the elementary and secondary levels. Program graduates will be eligible for the "G" certificate in TESL (K-12) if they already have an "A" teaching certificate and minimum proficiency in a foreign language. Course requirements for both these students and students not seeking the "G" certificate in TESL include Part I: *Foundations* (12 hours), EDU 6100, ENG 6161 and 4263, and one course from the following: FL 4200, ENG 4165, ANT 4120 or 4090; Part II: Curriculum (9 hours), ENG 4166, EDU 5101, and 6120; Part III: Specialization (12 hours), RDG 6250, EDU 5103 and 6010, and a thematic elective course; Part IV: Internship (3 hours).

M.Ed. In Reading Education. This program is designed to train both reading specialists and regular classroom teachers seeking additional expertise in reading at the elementary and secondary levels. Program graduates will be eligible for the "G" certificate in Reading, K-12. Course requirements include Part I: *Foundations* (nine hours), EDU 6100 and 6101 and RDG 6250. Part II: *Curriculum* (six hours) EDU 6120 and RDG 5150 or 5170. Part III: *Specialization* (15 hours), RDG 6260, 6410 and 6480, ENG 6103 and EDU 6109 or PSY 4140. *Thematic Electives* (six hours).

M.Ed. In Special Education. This program is designed for students seeking graduate certification in Special Education (mental handicaps, learning disabilities, emotional handicaps, gifted and talented, cross-categorical). The requirements are as follows: EDU 6100, 6101, 6120, and 6109; SED 6100, 612X, 611X, 6130, 647X and electives (six hours).

Approval of Individual Programs. Approval of each student's program will be the responsibility of an adviser. The student also will have a graduate committee for consultation and evaluation. The committee shall consist of the adviser and at least two other faculty members representing the major areas of concentration in the student's program.

Comprehensive Examination. Each student will complete either an extensive master's project or a written comprehensive examination. The project is designed, carried out and evaluated under the direction of the student's Graduate Committee and may take the form of a thesis, a research study or a program development activity. The written comprehensive examination is prepared and evaluated by the student's Graduate Committee and is intended to determine the extent of the student's assimilation of his/her total program. Both the project and the written examination are followed by an oral examination wherein the student clarifies, expands upon and/or defends the written project report or examination. More information on the project or written examination may be obtained in the Department.

Certificate of Advanced Study (Sixth Year) Programs. The Department offers Certificate of Advanced Study (CAS) programs in Elementary Education (Early Childhood and Intermediate), Secondary Education (History, English and Mathematics), and Special Education.

General Requirements. The CAS programs involve a minimum of 36 semester hours of course work including a supervised internship. At least half of each student's program must consist of advanced graduate courses. Students must also successfully complete a comprehensive review.

Residence Requirement. All course work for the Certificate in Advanced Study Programs must carry UNCC residence credit except that six semester hours of approved course work may be accepted for transfer credit from another accredited institution. Of the course work carrying UNCC residence credit, nine (9) semester hours must be earned through registration and completion of these courses on the UNCC campus by one of the following means:

1. Registration for 9 semester hours of credit during one semester or two summer sessions. This would be considered full-time work on the campus.

2. Registration for 9 semester hours of credit during two consecutive semesters during an academic year. A spring semester of one academic year combined with the fall semester of the following academic year would also meet this requirement.
3. Registration for 9 semester hours of credit during a semester and consecutive summer term or a summer term and consecutive semester. Either of the summer terms could be used to meet this requirement.
4. Should unusual or extenuating circumstances prevent a student from meeting the on campus requirement, the student may appeal in writing to the Student Personnel Committee. The Student Personnel Committee would consider the appeal and render a decision.

PROGRAMS

Certificate of Advanced Study in Elementary Education. This program is designed for students seeking advanced graduate skills in the areas of Early Childhood and Intermediate Education. The requirements for the program are as follows: ADS 7250, EDU 6110, 7610, HSV 7135 and 7842. The student must select one course from the following (three hours): PSY 4140, EDU 6109 and 7110. Also, the student is to select one course from the following (three hours): EDU 6150, RDG 6250, EDU 6250 and EDU 6251. The student must select six semester hours from teaching field electives. Twelve semester hours must be selected from cognate area of study or electives outside the College of Education and Allied Professions.

Certificate of Advanced Study in Secondary Education. This program is designed for students who are seeking advanced skills in the area of Secondary Education, concentrating in English, mathematics or history. The requirements for the program are as follows: ADS 7250, EDU 6110, 7623, 7420 or 7840 and 7220 or 7221. Students may choose three hours from the following to complete their professional education sequence (18 hours): SED 6100, RDG 6250, RDG 5270, HSV 7135 and EDU 7622. Eighteen semester hours must be selected from a cognate area of study.

Certificate of Advanced Study in Special Education. This program is designed to prepare students to be specialists in special education curriculum, research and development, technical assistance, and instruction and to assume leadership positions in special education. The requirements of the program are: EDU 6110, SED 7110, 7611, 7112, 7113 and 7471. The student must complete an individual project (three hours) and select approved electives from the departments of Curriculum and Instruction, Health and Physical Education, Educational Administration, Human Services, Psychology, or Sociology and Anthropology.

COURSE DESCRIPTIONS

EDUCATION (EDU)

Courses for Undergraduates

(110) (220) **EDU 1110. Communication Skills and Processes. (3)** Communication theory; analysis and application of inter- and intra-personal communications strategies.

(240) **EDU 1140. Learning Skills Instruction: Theory, Practice and Application. (3)** Development of both knowledge of and performance in the learning skills necessary for successful academic performance. Emphasis on learning principles and other factors important in skills development; motivation and goal setting; and the application of skills in academic settings.

(200) **EDU 2100. Introduction to Education. (3)** Comprehensive introduction to the profession of teaching which surveys the social, historical, and philosophical foundations for the educating professions, the organization and various levels of education, and the major issues in American education.

(210) (340) **EDU 2110. Instructional Design and Evaluation. (3)** Prerequisites: Sophomore status. Corequisites: EDU 2100 and PSY 2109. Setting goals and objectives for instruction, planning activities and evaluation based on objectives with emphasis on writing cognitive, social, affective, and psychomotor objectives using an accepted system, and developing teacher made and other types of classroom tests.

(250) **EDU 2150. Human Development Across the Life Span. (3)** Biological, psychological and social development throughout the life span.

Courses for Advanced Undergraduates

(300) (485) **EDU 3100. Elementary School Curriculum. (3)** Prerequisites: EDU 2100, PSY 2100, SED 3160. Corequisites: EDU 3120, 3151 and L. Curricular planning and development skills with emphasis on designing and implementing integrated activities, developing individualized materials, and study of the nature and function of elementary schools.

(320) (440) **EDU 3120. Analysis of Teaching and Research. (3)** Prerequisites: EDU 2100 and 2110 and Junior Status. Corequisites: EDU 3100, EDU 3150. Practices that conceptualize, measure and improve classroom performance and management with emphasis on various organizational patterns and practices, different approaches to instruction and their impact on student learning, and adapting and evaluating teacher behavior in specific contexts and grade levels. Concrete instruments for evaluation of on-site observations of school programs will be used. (Offered Fall and Spring Semesters only.)

(350) **EDU 3150. Science in the Elementary School. (4)** Prerequisites: BIO 1110 and ES 1101 and Junior Status. Corequisite: PHY 1150. Methods course for orientation to teaching strategies and materials appropriate for teaching science in grades K-6. Emphasis on using science content to develop effective science learning experiences for elementary school children. Field Experience included as a one hour lab. (Offered Fall and Spring Semesters only.)

(351) **EDU 3151. Language Arts in the Elementary School. (4)** Prerequisite: ENG 1101, 1102. Corequisites: RDG 3151, ENG 3103 or 3104. Methods course for orientation to the teaching of Language Arts in grades K-6. Emphasis on methods for teaching English grammar, spelling, writing, listening, and speaking. Field experience included as a one hour lab. (Offered Fall and Spring semesters only).

(352) **EDU 3152. Social Studies in the Elementary School. (4)** Prerequisites: 12 hours of Social Science and History, Junior Status. Corequisites: N.C. History and ECO 5102. Methods course for orientation to teaching strategies and materials for teaching social studies in grades K-6. Emphasis on using social science content to develop effective social studies instruction for elementary school children. Field experience included as one hour lab. (Offered Fall and Spring semesters only.)

(382) **EDU 3182. Methods and Management for Teaching Social Studies. (3)** Prerequisites: EDU 3152, Concentration in social studies. Preparation to teach social studies at the middle grades and secondary levels. Emphasis on teaching concepts from History and the Social Sciences. (Offered one semester per year only.

(385) **EDU 3185. Middle Grades Education. (3)** Corequisite: EDU 3185L. Prerequisite: Junior Status. Comprehensive overview of education in the middle grades (6-9) with emphasis on the foundational components, organizational patterns, instructional programs and management techniques unique to the middle grades. (Offered one semester per year only.)

(385L) **EDU 3185L. Middle Grades Teaching Laboratory. (1)** Prerequisite: Junior Status. Corequisite: EDU 3185. Participation in middle grade instructional settings. (Offered one semester per year only.)

(386) **EDU 3186. Middle Grades Children. (3)** Prerequisites: PSY 2109, EDU 2100, Junior Status. Physical, social, cognitive and affective developmental factors which influence growth and achievement of 11-14 year old students in grades 6-9. (Offered one semester per year only.)

(395) **EDU 3195. Secondary Education. (3)** Prerequisites: EDU 2100 and 2110, Junior Status. Comprehensive overview of secondary education with emphasis on the foundational components, instructional programs, and management techniques unique to grades 9-12. (Offered one semester per year only.)

(396) **EDU 3196. Secondary School Students. (3)** Prerequisites: PSY 2709, EDU 2100, Junior Status. Physical, social, cognitive and affective developmental factors which influence growth and achievement of 14-18 year old students in grades 9-12. (Offered one semester per year only.)

(460) (486) **EDU 3460. Student Teaching Grades K-4. (12)**

(470) (487) **EDU 3470. Student Teaching Grades 4-6. (12)**

(480) **EDU 3480. Student Teaching Grades 6-9. (12)**

(490) **EDU 3490. Student Teaching Grades 9-12. (12)** Prerequisites: Approved application for student teaching, completion of general studies, professional studies, and specialization requirements; a GPA of 2.75 in major, 2.75 in professional studies, and 2.50 overall. Grade of C or better in all professional education courses. Program of experiential learning activities in the student's area of specialization conducted in an approved school setting under the supervision and coordination of University faculty and school personnel. Emphasis on development of competencies in the areas of planning, evaluating, instructing, managing instructing, providing the learning environment, being professional and examination of strategies for developing a personal teaching/learning style. Opportunities to demonstrate the above skills are provided in appropriate grade level settings.

(472) **EDU 3800. Individual Study in Education (1-6)** Prerequisite: Permission of the student's adviser and an appropriate individual study director. Designed to allow a student to pursue individual goals under the supervision of an appropriate faculty member. May be repeated for credit.

Courses for Graduate Students and Advanced Undergraduates

(570) **EDU 5000. Selected Topics in Education (3-6) (3-6G)** Prerequisite: EDU 2150 and permission of the Department of Curriculum and Instruction. Seminars, independent study and clinical experiences. May be repeated for credit as topics vary with departmental approval.

(501) **EDU 5101. Second Language Diagnosis and Evaluation. (3) (3G)** For current and future teachers of English as a Second Language (TESL) to develop multiple criteria assessment model as a TESL diagnostician and to master other competencies prescribed by the State of North Carolina.

(503) **EDU 5103. Teaching English as a Second Language. (3) (3G)** For current and future teachers of English as a Second Language to master a variety of approaches, methods and techniques of teaching ESL and other competencies prescribed by the State of North Carolina.

(512) **EDU 5120. Microcomputer Applications in Education. (3) (3G)** Microcomputer systems and software for enhancing teaching, learning and educational management. Hands-on experience in evaluating, selecting and integrating courseware into elementary, secondary and higher education. Principles of programmed learning and instructional design as they relate to microcomputer-based interactive instruction.

Courses for Graduate Students Only

(673) **EDU 6000. Topics in Education. (1-3G)** Prerequisite: Permission of Department of Curriculum and Instruction. Examination of selected areas of interest in the education profession. May be repeated for credit as topics vary and with departmental approval.

(600) **EDU 6100. Theories of Human Development and Learning. (3G)** Concept of development; philosophical antecedents of developmental and learning theories; role of theory in explaining human nature; components of theoretical explanations; evaluating theories.

(601) **EDU 6101. Research Methods in Human Development. (3G)** Empirical, logical and conceptual research problems; methods and procedures of research; designing research proposals; writing reviews of related literature; library research.

(602) **EDU 6102. The Person and School in Urban Society. (3G)** The basic philosophical theories and socio-cultural forces that influence the objectives, structure and programs of schools, agencies and institutions in urban society.

(609) **EDU 6109. Interest, Aptitude, Intelligence. (3G)** Study of the social, psychological and philosophical concepts of interest, aptitude and intelligence as they contribute to the understanding of individual differences and needs. Assessment of human behavior through the administration and evaluation of current assessment devices and tests.

(610) **EDU 6110. Descriptive and Inferential Statistics in Education. (3G)** Prerequisite: EDU 6101 or equivalent. Objective decision-making in research; inferential methods; elementary parametric and non-parametric techniques in hypothesis testing; data processing through university computer facilities. (Offered one semester per year only.)

(620) **EDU 6120. Curriculum Theory. (3G)** Study of theoretical constructs of curriculum and the nature of experience as they relate to facilitating theory into practice. Emphasis on research and experimentation in developing curriculum theory, processes, materials and relationships.

(621B) **EDU 6121. Instructional Design. (3G)** Prerequisites: Completion of masters' core: EDU 6100, 6101 and advanced instructional planning; systems development; task analysis; sequencing, delivery systems; summative and formative evaluation of instruction and student progress.

(621F) **EDU 6122. Curriculum Development. (3G)** Planning, development and evaluation of curricular programs.

(621A) **EDU 6123. Strategies and Design in Human Development and Learning: Human Development. (3G)** Examination of the process of program planning, development and evaluation for educators in nontraditional settings.

(635) **EDU 6135. Learning Media, Resources and Technology. (3G)** Selection, use and evaluation of technological innovations in instructional media.

(640) **EDU 6140. Introduction to Adult Education. (3G)** Overview of the field of adult education including the nature, growth and historical development of adult education, its problems, and possible solutions. Emphasis on philosophy and objectives, major figures and movements, possible careers, and an international perspective.

(641) **EDU 6141. Designing Learning Experiences for Adults. (3G)** Examination of unique characteristics and major learning problems of adults with attention to factors which affect learning ability, achievement, and motivation throughout the adult life cycle and the principles of curriculum building and instructional design.

(643) **EDU 6143. Planning, Conducting, and Evaluating Adult Programs. (3G)** Field-centered investigation of adult education programs conducted by various organizations, agencies, and groups as a primary, supplementary, or complementary function. Emphasis on the theoretical foundations upon which the programming process is predicated, developing a theoretical model, and acquiring the conceptual tools necessary for analyzing the programming process and conducting effective evaluations in any adult education organization.

(644) **EDU 6144. Methods and Techniques for Adult Learners. (3G)** Examination of the characteristics unique to the educated and to the undereducated adult and analysis of the methods and techniques available for working with adults and their applicability under varying circumstances. Group participation in the various methods and techniques will be required.

(625A) **EDU 6150. Models of Teaching. (3G)** Prerequisites: EDU 6100, 6101 and 6120. Learning theory associated with information processing, personal, social, and behavioral models; current trends of instructional methodology for a variety of content areas.

(605) **EDU 6220. Adolescence and Learning. (3G)** Study of adolescence as a phase of development and its relationship to the learning process.

(622) **EDU 6225. Topics and Issues in Middle Grades. (3G)** Examination of educational practice in the middle grades (6-9) including trends and issues unique to the middle grades. Emphasis on broadening understanding of foundational components, organizational patterns, instructional programs and management techniques. (Offered one semester per year only.)

(625C) **EDU 6250. Issues in Science Education. (3G)** Orientation to content, curriculum and methods appropriate for teaching science in grades K-9. Emphasis on a critical examination of current trends and practices in the teaching of science. (Offered one semester per year only.)

(625D) **EDU 6251. Teaching and Learning Mathematics. (3G)** Mathematics education for teachers K-12. Problem solving in selected areas of mathematics; evaluation of problem solving; research in mathematics education. (Offered one semester per year only.)

(626D) **EDU 6252. Diagnosing Mathematical Learning Problems. (3G)** For teachers K-9. Assessment of student difficulties in learning mathematics.

(654) **EDU 6254. Issues in Social Studies Education. (3G)** Current issues in teaching and learning social studies. Emphasis on current trends in curriculum, advanced instructional methods, and research for grades K-12. (Offered one semester per year only.)

(670A) **EDU 6470. Early Childhood Education Clinical Experience. (3G)** Program of experiential learning activities in the student's level and/or area of academic concentration in an approved school setting (K-3).

(670B) **EDU 6471. Intermediate Education Clinical Experience. (3G)** Program of experimental learning activities in the student's level and/or area of academic concentration in an approved school setting (4-9).

(670C) **EDU 6472. Secondary Education Clinical Experience. (3G)** Program of experimental learning activities in the student's area of academic concentration in an approved secondary school setting.

(670D) **EDU 6473. Middle Grades - Internship and Seminar. (3-6G)** Supervised clinical activities to develop and assess the student's ability to observe, analyze and recommend changes for curriculum and instruction in the middle grades classroom.

(671A) **EDU 6474. Elementary Internship and Seminar. (3-6G)** Supervised clinical activities to develop and assess the student's ability to observe, analyze and recommend changes for curriculum and instruction of the elementary classroom. (Offered Fall and Spring Semesters only.)

(671B) **EDU 6475. Secondary Internship and Seminar. (3-6G)** Supervised clinical activities to develop and assess the student's ability to observe, analyze and recommend changes for curriculum and instruction of the secondary classroom. (Offered Fall and Spring Semesters only.)

(671C) **EDU 6476. Seminar and Internship in Human Development and Learning: Teaching. (3-6G)** Prerequisite: departmental permission. Supervised experiences in public, private school or non-school teaching with emphasis on developing skills as an education professional. Offered only on a Pass/No Credit Basis. (Offered Fall and Spring Semesters only.)

(651) **EDU 6651. Piagetian Theory. (3G)** Prerequisite: Permission of the instructor. Advanced seminar for investigation of Piagetian Theory with emphasis on genetic epistemology, research and neo-Piagetian concepts.

(672) **EDU 6800. Individual Study in Education. (1-6G)** Prerequisite: Permission of Department of Curriculum and Instruction. Designed to permit students to conduct research on selected topics, examine specific educational/human services literature and develop special projects under the direction of a faculty member. May be repeated for credit with departmental approval. Offered only on a Pass/No Credit Basis.

(699) **EDU 6900. Project, Thesis or Comprehensive Examination. (0)** Research plan or intention to take the final comprehensive written examination is arranged with the student's advisor and graduate committee.

Courses for Advanced Graduate Students Only

(721) **EDU 7110. Applied Research. (3G)** Development and implementation of proposals for research; use of designs for research and statistical procedures as required by research plans of graduate students.

(722) **EDU 7120. Multivariate Analytic Methods. (3G)** Prerequisite: EDU 6110 or the equivalent. Multiple regression; factor analysis applied to descriptive, correlational and experimental research.

(726) **EDU 7126. Comparative Education. (3G)** Analysis of sociocultural forces affecting educational planning and comparison of contemporary educational systems of selected countries and the United States.

(750) **EDU 7220. Current Issues in Secondary Education. (3G)** Study of problems currently affecting secondary schools with emphasis on the student's skills of problem identification, delineation and the development of alternative solutions and their consequences. (Offered one semester per year only.)

(751) **EDU 7221. Evaluation of Secondary Curriculum and Instruction. (3G)** Examination of criteria and procedures for evaluating curricula and the instructional effectiveness of secondary classroom teachers. (Offered one semester per year only.)

(772) **EDU 7420. Internship: Peer Leadership in the Secondary School. (3G)** Supervised clinical activity to develop and assess the student's ability to exert leadership among the staff of a secondary school to solve a specified problem. (Offered one semester per year only.)

(734) **EDU 7610. Reading in Research in Elementary Education. (3G)** Seminar for in-depth examination of research literature in early childhood or intermediate education. (Offered one semester per year only.)

(752) **EDU 7622. Analysis of Secondary Teaching. (3G)** Seminar on the systematic observation and analysis of instructional activities of teachers in secondary classrooms including classroom atmosphere, verbal and nonverbal communication, and the structuring of learning tasks. (Offered one semester per year only.)

(753) **EDU 7623. Applied Research Seminar in Secondary Education. (3G)** Design, implementation and dissemination of "action research" in a secondary education setting. (Offered one semester per year only.)

(772) **EDU 7840. Individual Project in Secondary Education. (3G)** In consultation with a faculty adviser, the student will identify and solve a problem in secondary education. (Offered one semester per year only.)

(742) **EDU 7842. Individual Project in Elementary Education. (3G)** In consultation with a faculty adviser, the student will identify and solve a problem in a specific area of elementary education.

READING (RDG)

Courses for Undergraduates

(351) **RDG 3151. Reading and Language Development. (3)** Prerequisite: EDU 1110 and 2100. Reading process and reading instruction; relationship between language development and reading; field-based application of course content.

Courses for Graduate Students and Advanced Undergraduates

(525) **RDG 5250. Reading in the Content Areas. (3) (3G)** Theories, research, problems and instructional methods associated with reading in the content areas of the intermediate and secondary school curriculum.

(635G) **RDG 5260. Relationship Between Writing and Reading K-12. (3) (3G)** Theories, research and instructional methods pertaining to related developmental processes of reading and writing from pre-school through high school.

(630) **RDG 5270. Trends and Issues in Reading/Language Arts. (1-3) (1-3G)** Theories, research and instructional methods associated with reading and the language arts, pre-school through high school; questions of effectiveness related to instructional approaches and materials; related topics such as dialect, testing and literacy.

Courses for Graduate Students Only

(625B) **RDG 6250. Language Development and Reading. (3G)** Theories, research, instructional approaches and materials, and evaluation strategies pertaining to the relationship between the development of language competence and performance and the development of reading abilities and interests.

(626B) **RDG 6260. Diagnostic Instruction in Reading. (3G)** Prerequisite: RDG 6250 or permission of instructor. Examination, use, and critique of theories and research about reading processes and problems; diagnostic approaches and techniques; instructional strategies to improve reading proficiency.

(636) **RDG 6470. Practicum in Reading Instruction. (3G)** Prerequisite: RDG 6260 or permission of instructor. Application and evaluation of instructional approaches in reading; working with students and colleagues in planning, implementing, observing and evaluating instruction.

(671G) **RDG 6480. Coordination of Reading Programs. (3G)** Prerequisite: Completion of graduate reading course sequence and permission of instructor. Assumption and evaluation of the role of the reading teacher who assists school staff members in assessing, planning, implementing, and evaluating the total school reading program. Offered only on a Pass/No Credit basis.

SPECIAL EDUCATION

Courses for Undergraduates

(360) **SED 3160. Developmental Exceptionalities. (3)** Survey of human exceptionality, including exceptionally gifted and those with developmental disabilities and handicaps.

(370) **SED 3170. Special Education Assessment. (3)** Prerequisite: SED 360. An overview of the fundamental concepts in educational assessment of exceptional students. Emphasis is placed upon the utility and limitations of various assessment procedures. Standardized, criterion-referenced, and informal measures will be discussed. Additionally, multi-disciplinary process and Individualized Education Plan (IEP) development will be covered.

(380) **SED 3180. Special Education Methods and Materials: Elementary Level. (3)** Prerequisite: SED 360. An overview of curriculum instructional methods and materials which are used with learners with special needs at the elementary level.

(390) **SED 3190. Special Education Methods and Materials: Secondary Level. (3)** Prerequisite: SED 360. Designed to provide students with knowledge regarding instructional methods, materials, and curriculum for mentally handicapped students in secondary level classrooms.

SED 3490. Student Teaching: Special Education Grades K-12. (12) Prerequisites: Approved application for student teaching, completion of general studies, professional studies, and specialization requirements; a GPA of 2.75 in major, 2.75 in professional studies, and a 2.50 overall. Grade of C or better in all professional education courses. Program of experiential learning activities in approved special education settings under the supervision and coordination of university faculty and school personnel. Emphasis on development of competencies in the areas of planning, evaluating, selecting and implementing instructional strategies to facilitate learning in exceptional children, working in consultation with parents and professional. Seminars are held to facilitate professional skill development.

Courses for Graduate Students and Advanced Undergraduates

(530) **SED 5130. Classroom Management. (3) (3G)** Prerequisite: SED 3160 or graduate standing. Theoretical context and related applied strategies necessary to effectively manage the classroom behaviors of individuals or groups of students. Additional work required for graduate credit.

Courses for Graduate Students Only

(603) **SED 6100. Introduction to Special Education. (3G)** Examination of the historical antecedents of contemporary practices in the field of special education with emphasis on the conceptual models of child variance and current trends in the field of education.

(612) **SED 6105. Physiological Aspects of Learning. (3G)** Examination of theories of learning as they relate to the structure and physiology of the central nervous system with emphasis on developmental abnormalities and disease processes that affect learning in children and youth.

(625E) **SED 6111. The Gifted and Talented. (3G)** Examination of the historical and philosophical perspectives of education for gifted and talented learners with emphasis on identification procedures, creativity, laws/policies, and current research in the field of giftedness.

(625H) **SED 6112. Learning Disabilities. (3G)** Examination of learning disabilities with emphasis on theories, issues, current trends and definitions of learning disabilities as well as instructional strategies, program models and major contributions to the field.

(625) **SED 6113. Mental Handicaps. (3G)** Examination of historical antecedents, major contributors, current practices, issues and trends in the field of mental retardation.

(625J) **SED 6114. Emotional Handicaps. (3G)** Examination of the conceptual models of emotional disturbance with emphasis on operational models and current practices based on the constructs of the models. Consideration of administrative arrangements for programs for children with emotional behavior.

(625K) **SED 6115. Mild Handicapping Conditions. (3G)** Examination of theories and practice of cross-categorical programming, with emphasis on theories, issues, current trends, current practices, and consultation practices.

(627) **SED 6116. Career and Vocational Techniques. (3G)** Methods and procedures used in preparing handicapped people for the world of work. Prevocational work study and post-school programs leading to or approaching adult independence are studied.

(621G) **SED 6121. Methods and Materials: Mental Handicaps. (3G)** Examination of the principles and practices of curriculum development and modification and current instructional methodologies for the mentally handicapped learner.

(621J) **SED 6122. Methods and Materials: Emotional Handicaps. (3G)** Planning, implementation and evaluation of special education classrooms with emphasis on curriculum models, behavioral and academic strategies and individualized instruction for emotionally handicapped learners.

(621K) **SED 6123. Methods and Materials: Learning Disabilities. (3G)** Planning, implementation, and evaluation of instructional programs with emphasis on individual instruction, grouping for instruction, consultation, assessment, and program planning for the learning disabled.

(628) **SED 6124. Methods of Instruction for the Gifted. (3G)** Prerequisites: SED 6111; EDU 6109. A course designed to provide the skills necessary to plan, implement, and evaluate instructional procedures that facilitate learning by gifted students.

(622) **SED 6125. Instructional Practices: Cross-categorical. (3G)** Prerequisites: SED 6100; EDU 6109. Assessment procedures appropriate for use with the mildly handicapped. Assessment information will be used to plan for the most appropriate instruction for the mildly handicapped receiving education in a cross-categorical setting.

(626E) **SED 6130. Diagnostic Instruction. (3G)** Principles and practice of educational problem solving with emphasis on formal and informal assessment, observation and interviewing strategies for special educators.

(671H) **SED 6471. Internship: Gifted and Talented. (3-6G)** Prerequisite: Departmental approval. Supervised experiences in observation, instruction and administration of programs with gifted and talented students. Offered only on a Pass/No Credit basis.

(671J) **SED 6472. Internship: Learning Disabilities. (3-6G)** Prerequisite: Departmental approval. Supervised experiences in observation, instruction and administration of programs with learning disabled. Offered only on a Pass/No Credit basis.

(671K) **SED 6473. Internship: Emotional Handicaps. (3-6G)** Prerequisite: Departmental approval. Supervised experiences in observation, instruction and administration of programs with emotionally handicapped students. Offered only on a Pass/No Credit basis.

(671L) **SED 6474. Internship: Mental Handicaps. (3-6G)** Prerequisite: Departmental approval. Supervised experiences in observation, instruction and administration of programs with mentally handicapped students. Offered only on a Pass/No Credit basis.

(671M) **SED 6475. Internship: Mild Handicaps. (3-6G)** Prerequisite: Departmental approval. Supervised experiences in observation, instruction and administration of programs with special needs students. Offered only on a Pass/No Credit basis.

(671N) **SED 6640. Seminar in Special Education. (3G)** Examination of current issues and trends related to special education program planning and instruction.

(671I) **SED 6641. Seminar in Curriculum Development: Gifted and Talented. (3G)** Procedures and suggestions for developing gifted and talented programs; philosophy of the teacher, school and community assumptions of curriculum; child characteristics; parental concerns; teaching styles.

Courses for Advanced Graduate Students Only

(705) **SED 7110. Special Education Program Planning and Evaluation. (3G))** Techniques used by individuals in leadership positions in special education as they engage in program planning and evaluation.

(715) **SED 7112. Issues in Special Education. (3G)** Examination of current issues in special education, including legislation, policy, funding, litigation and program trends.

(720) **SED 7113. Special Education Technology. (3G)** Examination of recent advances in the application of educative media, materials and technology in the field of special education.

(771) **SED 7471. Advanced Internship in Special Education. (3G)** A field-based experience in a position of leadership in special education.

(710) **SED 7611. Seminar in Special Education Research. (3G)** Examination of essential readings in each of the areas of exceptionality as they relate to curricular decision-making.

LIBRARY SCIENCE

Courses for Graduate Students and Advanced Undergraduates

(520) **LBS 5110. Organization and Administration of the School Media Center. (3) (3G)** Acquisition, processing, circulation of materials; student assistant; records and reports; attendance and scheduling; library quarters and equipment, professional relationships, evaluation of library sciences.

(522) **LBS 5111. Basic Reference Sources and Materials. (3) (3G)** Selection, evaluation and use of basic reference materials.

(524) **LBS 5112. Reading Guidance and the Selection of Books and Materials for Children. (3) (3G)** Survey of the development of children's literature, with study of aids and criteria for selection of books and other materials; principles and objectives of reading guidance for the kindergarten and elementary school pupil.

(526) **LBS 5113. Reading Guidance and the Selection of Books and Related Material for Young People. (3) (3G)** Survey of library materials and principles and objectives of reading guidance, appropriate for the junior high and high school student, with study of aids and criteria for their selection.

(528) **LBS 5114. Non-Book Materials. (3) (3G)** Study of the principles and techniques for the selection, acquisition, organization, circulation and use of non-book materials in the library program.

Department of Educational Administration

Chairperson: Associate Professor Lyons
Professors: Britt, Hackney, Pittillo, Smith
Associate Professor: Pleasants

The Department of Educational Administration offers the Master of Education (M.Ed.) degree and the Certificate of Advanced Study (CAS) with a concentration in Educational Administration or Curriculum and Instruction (Supervision). Students are awarded the master's degree or the Certificate of Advanced Study and the appropriate graduate level certification upon completion of the specified requirements. The department also offers programs of study for students who wish to add graduate (fifth year) or Certificate of Advanced Study (sixth year) certification in Educational Administration or Curriculum and Instruction (Supervision).

MASTER OF EDUCATION DEGREE

The Department offers the Master of Education (M.Ed.) degree with a concentration in Educational Administration or Curriculum and Instruction (Supervision).

Requirements for the Degree. The candidate for the M.Ed. degree must successfully complete a minimum of 36 semester hours of work in courses approved for graduate credit including at least 18 hours in courses which are open to graduate students only.

In addition, all students must successfully complete either a written comprehensive exam or a master's project as a requirement for graduation. While these are completed at or near the end of the student's program of study, the student should consult with the adviser within the first 12 hours of course work concerning procedures and preparation for options.

Approval of Individual Programs. Approval of each student's program will be the responsibility of an adviser. The student will also need a graduate committee for consultation and evaluation. The committee shall consist of the adviser and at least two other faculty members representing the major areas of concentration which are significant to the student's program.

Comprehensive Examination. Each student will complete either an extensive master's project or a written comprehensive examination. The project is designed, carried out and evaluated under the direction of the student's Graduate Committee and may take the form of a thesis, a research study or a program development activity. The written comprehensive examination is prepared and evaluated by the student's assimilation of his/her total program. Both the project and the written examination are followed by an oral examination, wherein the student clarifies, expands upon and/or defends the written project report or examination.

PROGRAMS

M.Ed. Degree in Educational Administration. This program is designed for students seeking Level I Administration Certification (Principal's Certificate). The required courses are: EDU 6100, 6101, and 6120 and ADS 6160, 6161, 6165, 6166, and 6490. In addition to these courses, a student must select two electives from within the College of Education and Allied Professions and two courses from a cognate area such as management, political science, or sociology.

M.Ed. Degree in Curriculum and Instruction. The master's degree in Curriculum and Instruction which qualifies one for the supervisor's Certificate (Level I) has two tracks: Generalist and Specialist. Students in both tracks complete 21 semester hours of required courses: EDU 6100, 6101 and 6120 and ADS 6121, 6125, 6165, and 6491. Students in the Generalist Track must take 15 semester hours from restricted electives in the College of Education and Allied Professions selected from Administration and Supervision, Curriculum and Instruction and other appropriate program areas. Students in the Specialist Track complete 15-18 semester hours in a special subject area in the College of Arts and Sciences such as English, History, or Mathematics.

CERTIFICATE OF ADVANCED STUDY (SIXTH YEAR) PROGRAMS

The Department offers Certificate of Advanced Study (CAS) programs in Curriculum and Instruction (Supervision) and Educational Administration. Upon completion of the program, the student is eligible to receive Level II certification in Curriculum and Instruction or Level II certification in Educational Administration.

General Requirements. The CAS programs involve a minimum of 36 semester hours of course work including a supervised internship. At least half of each student's program must consist of advanced graduate courses. Students must also successfully complete a comprehensive review.

All course work for the Certificate of Advanced Study Programs must carry UNCC Residence credit. Six semester hours of approved course work may be accepted for transfer credit from another accredited institution. Of the course work carrying UNCC residence credit, nine (9) semester hours must be earned through registration and completion of these courses on the UNCC campus by one of the following means:

1. Registration for 9 semester hours of credit during one semester or two summer sessions. This would be considered full-time work on the campus.
2. Registration for 9 semester hours of credit during two consecutive semesters during an academic year. A spring semester of one academic year combined with the fall semester of the following academic year would also meet this requirement.
3. Registration for 9 semester hours of credit during a semester and consecutive summer term or a summer term and consecutive semester. Either of the summer terms could be used to meet this requirement.
4. Should unusual or extenuating circumstances prevent a student from meeting the on campus requirement, the student may appeal in writing to the Student Personnel Committee. The Student Personnel Committee would consider the appeal and render a decision.

PROGRAMS

Certificate of Advanced Study in Curriculum and Instruction (Supervision). This program is designed for students in or seeking leadership positions as supervisors in public or private schools. The requirements of the program are as follows: EDU 6110 and ADS 6166, 7250, 7695, 7196, 7197, and 7191. The remaining 15 semester hours must come from restricted electives in the College of Education and Allied Professions and/or from cognate areas of study.

Certificate of Advanced Study in Educational Administration. This program is designed for students in or seeking leadership in public or private school administration. The requirements for the program are as follows: EDU 6110 and ADS 7250, 7190, 7191, 7192, 7490.

The following are restricted electives from which the student must select two courses: ADS 7103, 7194, 7196, and 7697. Two courses also must be selected from a cognate area of study such as management, policital science or sociology.

COURSE DESCRIPTIONS

ADMINISTRATION

Courses for Graduate Students Only

(621C) **ADS 6121. Strategies and Designs in Curriculum Development. (3G)** Examination of principles and practices for educational leaders in program design, implementation and evaluation.

(625) **ADS 6125. Advanced Instructional Techniques. (3G)** Analysis of models of teaching and the match between attributes of the model and the instructional outcomes desired by the teacher.

(660) **ADS 6160. Introduction to Educational Administration. (3G)** Examinatin of behavioral components of administrative theory, organization, decision-making and planning for educational development including appraisal of significant functions, techniques, practices and problems as they relate to public school systems, social institutions, and the system of social and governmental agencies.

(661) **ADS 6161. The Principalship. (3G)** Examination of school administration focusing on the role, task and responsibilities associated with the principalship with special attention to the conceptual, human and technical skills associated with the principalship.

(665D) **ADS 6165. Supervision of Instruction. (3G)** Examination of the fundamentals in the areas of clinical supervision, in-service education and leadership in curriculum development.

(665E) **ADS 6166. Educational Leadership. (3G)** Examination of leadership in formal organizations and social and behavioral science research concerning leadership ability with emphasis on educational organizations and the role of the leader in the accomplishment of organizational goals.

(672C) **ADS 6490. Internship and Seminar: Administration. (3-6G)** Prerequisite: Department approval. Internship under the supervision of University and on-site personnel in a setting consistent with the student's professional goals in which the student will be involved in the diverse activities expected of the professional administrator. Seminars are held concurrently. Offered only on a Pass/No Credit basis.

(671D) **ADS 6491. Internship and Seminar: Supervision. (3-6G)** Prerequisite: departmental approval. Internship under the supervision of University and on-site personnel in a setting consistent with the student's professional goals in which the student will be involved in the diverse activities expected of the curriculum-instructional specialist. Seminars are held concurrently. Offered only on a Pass/No Credit basis.

(673) **ADS 6601. Seminar in Administration and Supervision. (1-3G)** Prerequisite: Permission of the Department. Examination of selected areas of interest in educational administration and supervision. May be repeated for credit with departmental approval.

(672) **ADS 6800. Independent Study. (1-3G)** Prerequisite: Permission of the department. Examination of selected areas of interest in Educational Administration and Supervision under the direction of a faculty member. May be repeated for credit with departmental approval.

(699) **ADS 6909. Project/Thesis/Comprehensive Registration. (0G)** Permission of graduate adviser. The student must register for ADS 6909 during the term in which he/she expects to take the comprehensive examination. Offered on a Pass/No Credit/In Progress basis.

Courses for Advanced Graduate Students Only

(790) **ADS 7190. Public School Administration. (3G)** Examination of theory and practice of public school administration including the roles of school boards, superintendents, central office administrators and other members of the leadership team at the district-wide level with emphasis on the role of the superintendent.

(791) **ADS 7191. School Law. (3G)** Examination of the legal aspects of school administration with special attention to case law and statutory provisions relevant to educational administration including examination of some court decisions that have influenced policies and practices in the schools.

(792) **ADS 7192. School Finance and Business Administration. (3G)** Examination of the theory and operation of school finance systems and school business administration with special attention to local, state and federal sources of school revenue and such business functions as purchasing, budgeting, accounting and financing capital outlay projects.

(793) **ADS 7193. School Personnel Administration. (3G)** Examination of personnel administration in educational institutions with special attention to those functions and responsibilities related to the administration of personnel at the school district level including the contribution of the personnel function to the overall management and operation of a school system.

(794) **ADS 7194. Planning School Facilities. (3G)** Examination of practices, principles and procedures related to educational facility planning including an overview of the major steps involved in planning educational facilities and the roles of all participants in a building program with special emphasis on the roles of the superintendent and board of elections.

(796) **ADS 7196. Program Evaluation. (3G)** Examination of instructional strategies and techniques of program evaluation with emphasis on the mastery of skills for utilization of selected programs for analyzing teaching/learning processes.

(725) **ADS 7250. Educational Policy Studies: Trends, Issues, and Problems. (3G)** Examination of educational issues, trends, problems, proposals, policies, and practices within historical, social, economic, political, and philosophical contexts.

(733) **ADS 7489. Practicum in Staff Development. (3G)** Examination of techniques of delivering in-service training and development of leadership for in-service educational programs including design and implementation of a staff development program in a school setting.

(771) **ADS 7490. Culminating Experience-Administration. (3-3G)** Demonstration of appropriate leadership abilities in a field setting including an internship at the school system level equivalent to full-time employment for a minimum of one semester and an action (field-based) project. Required for school administrators. May be repeated for credit.

(772) **ADS 7491. Culminating Experience-Supervision. (3-3G)** Demonstraton of appropriate leadership skills in a field setting. Required for curriculum and instruction specialists. May be repeated for credit.

ADS 7601. Seminar in Administration and Supervision. (1-3G) Prerequisite: Permission of the department. Examination of selected areas of Educational Administration and Supervision. May be repeated for credit with departmental approval.

(795) **ADS 7695. Advanced Seminar in Teaching and Learning. (3G)** Examination of a number of current teaching models to provide a framwork for choosing those appropriate for a given classroom setting with special attention to the relationship between teaching strategies and learning outcomes.

(797) **ADS 7697. Advanced Seminar in Supervision. (3G)** Investigation and evaluation of current trends and issues in supervision as they relate to the role of the curriculum and instructional specialist with special attention to the role of the instructional specialist in facilitating the teaching/learning process.

ADS 7800. Independent Study. (1-3G) Prerequisite: Permission of the department. Research on special projects under the direction of a faculty member. May be repeated for credith with departmental approval.

Department of Health and Physical Education

Chairperson: Professor Murphy
Associate Professors: Berne, Bostian, Healey, Tillotson
Assistant Professors: Humble, Shantzis
Lecturers: Avant, Bowman, Edelman, Fielding, Warming, Wright

SPECIALTY AREAS

Three helping specialties are offered in Physical Education. They are open to students from all degree programs.

Movement Education Specialty. (Successful completion of Physical Education 2251, 2252, 3251, 3252 and 3899 18 hrs.) The primary purpose of this area of concentration is to provide an opportunity for individuals to develop the knowledge and skills needed for helping people with play and performance forms of movement. Competencies which are gained will assist in preparing the student to help in activities which range from childhood play to quality performance in dance and athletics.

Coaching Endorsement Specialty. The Coaching Endorsement Specialty is designed primarily to meet the needs of the non-Physical Education major who wishes to coach. To complete the Coaching Endorsement Specialty the student must complete, with a grade of *C* or higher, 24 credit hours as specified. Twenty-one credit hours will suffice if PED 2290 is waived for the student. (Students who have current certification in standard first aid and cardiopulmonary resuscitation may request a waiver of PED 2290). The required courses are at least one course from the 2270 series (either of 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278), 2290, 3251, 3281, 3282, 3284, 3285 and 3099 (coaching internship).

Students who successfully complete the Coaching Endorsement Specialty will receive a Certificate of Endorsement. The endorsement will be for sports in which the student successfully completed a PED 2270 series course.

Athletic Training Specialty. The Athletic Training Specialty is a 24 credit hour concentration in the prevention and treatment of athletic injuries. The focus of the curriculum is concerned with emergency medical care in the absence of medical personnel, taping techniques, the recognition of athletic injuries and methods and modalities in injury rehabilitation under the guidance of physicians.

The Athletic Training Specialty affords students an opportunity to prepare to become athletic trainers. The student will have the opportunities to gain knowledge which is basic to passing the written and clinical exams of the National Athletic Trainers Association (NATA) and the hours supervised by certified athletic trainers and physicians in credit and non-credit clinical apprenticeship will count toward the 1800 clinical hours required for eligibility to take the exam. Certification examinations are given at central sites by NATA. Required courses are CHE 1103 and 1103L, BIO 1355 and 1355L, PED 1284L, 2290, 3284, 3290, 3291 and 3292.

HEALTH EDUCATION GRADUATE TRACK: MASTER OF EDUCATION DEGREE IN CURRICULUM AND INSTRUCTION

The central focus of the curriculum is the enhancement of the ability of health educators to provide information and strategies which will enable their students to actively seek optimal health. All courses in the curriculum focus on methodology, knowledge and skills for the primary purpose of helping the health education teacher affect health behavior appropriate for maintaining wellness at the highest level possible for each individual. Emphasis is placed on the school, agency, corporate, and community setting as contrasted to clinical situations. A Graduate Certificate in Health Education will be awarded to those who successfully complete the track and other certification requirements.

Requirements for the Health Education Graduate Track. The candidate for the degree of Master of Education must successfully complete a minimum of 36 semester hours of work in courses approved for graduate credit. Required courses for the degree with a track in health education

are HED 6120, 6140, 6150, 6160 and 6471 or 6472 and EDU 6100, 6101 and 6120. Health Education electives may be substituted for up to two of the five required HED courses if the analysis of the student's transcript or health education knowledge test score demonstrates a reasonable expectancy of competency in the knowledge and skills for which the courses were designed. The Health Education Knowledge Test is used for advising and curriculum evaluation only. Electives needed to complete the 36-semester-hour requirement may be selected from other graduate health education listings, other departments in the College of Education and Allied Professions or other colleges at UNCC. Students may substitute other appropriate courses for health education courses with the consent of the health education program coordinator.

Admission to Candidacy in the Health Education Graduate Track. The academic requirements for admission to the University and to the College of Education and Allied Professions graduate programs which are described under "Requirements for Graduate Admission" apply to admission to the Health Education Track.

COURSE DESCRIPTIONS

HEALTH EDUCATION

Students who desire more information about the courses may review course outlines in the Department of Health and Physical Education.

Courses for Undergraduates

(201) **HED 2101. Personal and Community Health. (3)** A health survey course with emphasis on health behavior, decision-making and knowledge.

(301) **HED 3101. Health Education in the Elementary School. (3)** Prerequisites: EDU 1110 and 1160. A methods course designed for the elementary specialist as an orientation to content, curriculum and methods appropriate for teaching health education in grades K-6.

Courses for Graduate Students Only

(620) **HED 6120. Philosophy and Practice in Health Education. (3G)** Philosophy, planning, development, delivery, and evaluation of health education in school and alternative settings.

(630) **HED 6130. Health Risk Reduction and Disease Prevention. (3G)** Personal/professional management of health risk factors and life style intervention processes for chronic/communicable diseases.

(635) **HED 6135. Health Product and Service Consumerism. (3G)** Teaching methodology, knowledge and skills for affecting appropriate health behaviors through emphasis on the individual consumer at the health marketplace.

(640) **HED 6140. The Health Educator and Mental Health. (3G)** Mental health from the perspective of the role of the health educator as a facilitator of mental health with emphasis on primary prevention in the school setting.

(650) **HED 6150. Responsible Drug Use in Contemporary Culture. (3G)** Teaching methodology, knowledge and skills for affecting appropriate health behaviors through the study of the exploration of use, misuse and abuse of natural and synthetic chemicals in today's society.

(660) **HED 6160. Human Sexuality and Family Life Education. (3G)** A course designed for teachers responsible for family life education in school health programs.

(670) **HED 6170. Environmental Influences on Health: A Global Perspective. (3G)** Teaching methodology, knowledge and skills for affecting appropriate health behaviors through study of the causes and effects of contemporary environmental problems.

(680) **HED 6180. Applied Nutrition for Today's Consumer. (3G)** Teaching methodology, knowledge and skills for affecting appropriate health behaviors through study of the basic dietary needs of humans.

(671) **HED 6471. Seminar and Internship in Health Education. (1-6G)** Prerequisite: completion of 12 or more graduate credit hours in health education and permission of the health education program coordinator. Supervised practice in health education. May be repeated for a different seminar and internship. Offered only on a *Pass/No Credit* basis.

(699) **HED 6899. Problems and Topics in Health. (3G)** Topics and special problems related to ideas, practices or significant trends in health education. Seminars and independent studies.

PHYSICAL EDUCATION

Students who desire more information about the courses may review course outlines in the Department of Health and Physical Education.

Courses for Undergraduates

(101) **PED 1201. Foundations of Physical Conditioning. (1)** The application and basic science of physical training programs designed to improve and maintain physical fitness.

(102) **PED 1202. Weight Training. (1)** Mechanics and programming of weight training.

(103) **PED 1203. Fencing. (1)** The skills and rules of the sport of fencing.

(104) **PED 1204. Aerobic Dance. (1)** Exercise sequences and dance patterns performed to music and disigned to improve general physical fitness.

(106) **PED 1206. Adaptive and Developmental Physical Education. (1)** Prerequisite: permission of the instructor. Prescribed ameliorative exercises adapted to individual needs, capacities and interests. Primarily designed for the individual with anatomical and functional defects.

(110) **PED 1210. Beginning Swimming. (1)** For weak or nonswimmers. Instruction in water safety fundamentals, basic body positioning, maneuvering in water, and traveling skills, including basic strokes.

(111) **PED 1211. Intermediate Swimming. (1)** Emphasis on gaining competency in at least four basic strokes and two dives.

(120) **PED 1220. Beginning Tennis. (1)** The rules, basic skills and strategy.

PED 1222. Racquet Sports. (1) Basic skills, tactics, safety and rules of racquetball, court and table tennis, squash and badminton with emphasis on conditioning.

(123) **PED 1223. Beginning Badminton. (1)** The rules, basic skills and strategy.

(125) **PED 1225. Beginning Handball. (1)** The rules, basic skills and strategy.

(140) **PED 1240. Beginning Golf. (1)** The grip, stance, stroke, use and selection of clubs, rules and etiquette.

(142) **PED 1242. Archery. (1)** The fundamental skills and selection, care and repair of equipment.

(150) **PED 1250. Volleyball. (1)** The rules, fundamental skills and strategies.

(160) **PED 1260. Gymnastics. (1)** The fundamental skills of gymnastics at the beginning level.

(374L) **PED 1284. Athletic Training Taping Techniques. (1)** Corequisite or prerequisite: PED 2290 and 3284. Instruction and practice in the application of adhesive and elastic strapping.

(212) **PED 2212. Advanced Lifesaving. (2)** Prerequisite: PED 1211 or instructor's permission. The science and skills associated with lifesaving. Qualifying students will receive the American Red Cross Advanced Lifesaving Certificate. One hour lecture and two hours laboratory each week.

(213) **PED 2213. Water Safety Instruction. (3)** Prerequisite: current American Red Cross Advanced Lifesaving Certification. Techniques used in teaching people aquatic skills. Qualifying students will receive the American Red Cross Water Safety Instructor's rating.

(219) **PED 2219. Scuba Diving. (3)** Prerequisite: appropriate swimming ability relative to current SCUBA standards as prescribed by recognized SCUBA certifying bodies. The science and skills associated with the use of self-contained underwater breathing apparatus. Students who demonstrate the required qualities may request certification as an open water SCUBA diver.

(220) **PED 2220. Advanced Scuba Diving. (1)** Prerequisite: Certified Open Water Diver or certification as a Basic SCUBA Diver with a minimum of 10 logged dives. The knowledge and skill required for underwater navigation, search and recovery, limited visibility diving and deep diving. The student will be required to go on two weekend long open water dives. Advanced Open Water Diver Certification will be granted to students who qualify.

(352) **PED 2251. Introduction to Human Movement: A Personal Approach. (3)** Selected methods of observing and analyzing human movement via self-observation and study.

(361) **PED 2252. Introduction to Movement Education. (3)** Study of movement as the content of physical education.

(373) **PED 2260. Leadership and Organization in Coaching. (3)** Study and practice of leadership and organization as it relates to coaching.

(270A) **PED 2270. Fundamentals of Basketball. (3)** Identification, study and practice of the skills fundamental to basketball performance.

(270B) **PED 2271. Fundamentals of Baseball. (3)** Identification, study and practice of the skills fundamental to baseball performance.

(270C) **PED 2272. Fundamentals of Softball. (3)** Identification, study and practice of the skills fundamental to softball performance.

(270F) **PED 2273. Fundamentals of Football. (3)** Identification, study and practice of the skills fundamental to football performance.

(270G) **PED 2274. Fundamentals of Gymnastics. (3)** Identification, study and practice of the skills fundamental to gymnastics performance.

(270Q) **PED 2275. Fundamentals of Swimming. (3)** Identification, study and practice of the skills fundamental to swimming performance.

(270S) **PED 2276. Fundamentals of Soccer. (3)** Identification, study and practice of the skills fundamental to soccer performance.

(270T) **PED 2277. Fundamentals of Tennis. (3)** Identification, study and practice of the skills fundamental to tennis performance.

(270V) **PED 2278. Fundamentals of Volleyball. (3)** Identification, study and practice of the skills fundamental to volleyball performance.

(270X) **PED 2280. Introduction to Exercise Science. (3)** The science bases of programming exercise for health fitness.

(310) **PED 2290. Emergency Medical Care. (3)** Knowledge and techniques for administering prompt and appropriate first aid and/or emergency medical care in situations where the services of qualified medical personnel are not available or are delayed.

(402) **PED 3099. Movement Problems/Topics. (1-6)** Prerequisite: Consent of instructor. Movement problems/topics chosen by the student which relate to special areas of interest. May be repeated for credit with approval of instructor.

(333) **PED 3233. Movement Experiences for Elementary School Children. (3)** Prerequisites: EDU 1110 and 1160. Study of movement and physical activities as applied in the elementary school program.

(352) **PED 3251. Human Movement. (3)** Prerequisite: PED 2257 or permission of instructor. Analysis and application of basic movement in specific sport, dance, gymnastic and aquatic skills.

(362) **PED 3252. Movement Education Content Development and Instruction. (3)** Prerequisite/Corequisite: PED 2252 or permission of instructor. Theory and practice of movement education in elementary school.

(371) **PED 3281. Motivation and Behavior in Sport: An Overview. (3)** Psychological aspects of sport and the effects of motivational and behavioral factors on sport performance.

(372) **PED 372. Sport, Culture and Society: An Overview. (3)** Sport as a social institution and the social and cultural factors influencing and influenced by sport.

(374) **PED 3284. Sports Injury Prevention and Management. (3)** Prerequisites: PEd 2290 or consent of instructor. The study and practice of modern principles of the prevention and management of sports injuries.

(375) **PED 3285. Conditioning for Maximum Sports Performance. (3)** Prerequisites: PED 2290 or consent of instructor. A study of biomechanical and physiological principles of conditioning for maximum sports performance. Two lecture and three laboratory hours each week.

(380) **PED 3290. Anatomical Structures and Athletic Injuries. (3)** Prerequisite: BIO 1355 and 1355L, PED 2290, 3284 and 1284. Anatomical structures and their relationship to the prevention and treatment of athletic injuries.

(381) **PED 3291. Therapeutic Modalities. (3)** Prerequisites: BIO 1355 and 1355L, PED 2290, 3284, 1284 and 3290. Methods and techniques of the application of selected therapeutic modalities and the evaluation of injuries relative to modalities.

(382) **PED 3292. Athletic Training Clinical. (3)** Prerequisites: BIO 1355 and 1355L, PED 2290, 3284, 1284 and 3290. Study and treatment of actual athletic injuries under the guidance of physicians and certified trainers.

Courses for Advanced Undergraduates and Graduate Students

(504) **PED 4204. Perceptual Motor Development. (3)(3G)** Theories, principles and research related to perceptual-motor development of children.

(505) **PED 4205. Perceptual Motor Learning. (3)(3G)** Prerequisite or corequisite: PEd 4204 or consent of instructor. Perceptual-motor learning of children and its effect on school performance and the relationships of perceptual-motor development to reading, writing and mathematics.

(508) **PED 4208. Perceptual Motor Therapy. (3)(3G)** Prerequisite: PED 4205 or consent of the instructor. Observation of and evaluation and therapy for children with perceptual-motor dysfunctions. May be repeated for credit with approval of instructor.

(510A) **PED 4210. Perceptual Motor Therapy Laboratory. (1)(1G)** Prerequisites/corequisites: PED 4204 or 4205 or 4208.

(510B) **PED 4211. Perceptual Motor Therapy Laboratory. (2)(2G)** Prerequisites/corequisites: PED 4204 or 4208.

(510C) **PED 4212. Perceptual Motor Therapy Laboratory. (3)(3G)** Prerequisite/corequisites: PED 4204 or 4205 or 4208. Supervised observation, tsting and clinical teaching of children with perceptual-motor dysfunction. Course may be repeated for credit with approval of instructor.

Department of Human Services

Chairperson: Professor Burke
Distinguished Professor: Powers
Professors: McLeod, Rowland
Associate Professors: Barret, Robinson
Assistant Professors: Ammons, Furr, Kochendofer, Nkomo, Shepard, Webb
Visiting Assistant Professor: Blackwell
Lecturers: Lynch, Phillips
Adjunct Assistant Professors: Hutchinson, Newman

The Department of Human Services administers programs focusing primarily on developing the knowledge and skills used with a variety of helping relationships: undergraduate programs in Child and Family Development and Human Services and graduate programs in Counseling and Guidance at both the master's and sixth-year levels.

UNDERGRADUATE PROGRAM

Human Services. The program in Human Services leads to the B.A. degree in Human Development and Learning. The program is predicated on the need in the community for persons with knowledge and competencies as helping generalists and with entry level job skills in one particular area of concentration. The area of concentration may be a traditional minor such as in the political science or social science areas, or it may be thematic, such as, but not limited to, substance abuse, public relations in human services, aging or volunteerism.

The major focus of the training in Human Services is to provide the knowledge and skills necessary to work with individuals and groups toward helping them develop to their maximum potential. The program has a strong experiential and practical service component.

Course Requirements

	Semester Hours
General Studies Requirements	42-43
Human Services Major	39
Related Area	18-24
Electives	18-24

Human Services Program Track

	Semester Hours
HSV 1100 Exploration of Human Development	3
HSV 3110 Leadership Theory and the Dynamics of Group Processes	3
CLG 3101 Guidance: Behavior and Growth	3
HSV 3410 Practicum in Human Services	9
HSV 3416 Internship in Human Services	9
HSV 3619 Senior Seminar in Human Services	3
HSV 4115 Effective Human Systems	3
HSV 5103 Substance Abuse: Primary Prevention	
or	
HSV 5104 Substance Abuse: Approaches to Intervention and Treatment	3
Three semester hours of restricted HSV electives	
	39

Child and Family Development. The Child and Family Development program is designed to offer students both academic study and practical experiences in the field of child and family development. Children are viewed in their relationships within the family and community context. Knowledge from both the natural and social sciences is applied to the child as an individual in the many roles and settings in which children function in society. Emphasis is on a sound theoretical base of knowledge balanced with practical work with children and adults. Students seeking training in nursery and preschool education, education for parenting, and other growth and development perspectives will gain insight and skills for a wide range of existing and emerging roles in a variety of settings which require a knowledge of child and family development.

UNCC Child Development Center for Day Care—a University sponsored program for preschool children—offers experiential learning opportunities for both undergraduate and graduate students.

Course Requirements

	Semester Hours
General Degree Requirements at UNCC	32
Child and Family Development Major	39
Related Area	18
Electives	31
	120

Child and Family Development Track

CFD 2111 Child Study: Interpreting Children's Behavior	3
CFD 2113 Infant and Early Years	3
CFD 2115 Education of the Young Child	3
CFD 2412 Practicum I: Observing and Recording Children's Behavior	3
CFD 2416 Practicum II: The Child and the Community	3
CFD 3115 Learning and Development	3
CFD 3412 Practicum III: The Family and the Community	3
CFD 3416 Internship in Child and Family Development	6
CFD 3619 Senior Seminar in Child and Family Development	3
EDU 1110 Communications Skills and Processes	3
HSV 1100 Exploration of Human Development	3
HSV 4115 Effective Human Systems	3
	39

Related Area

This would include six semester hours in Sociology, six semester hours in Psychology, and six semester hours in other selected areas.

GRADUATE PROGRAMS

Counseling and Guidance. The Counseling and Guidance Program offers course work at the graduate level leading to the master's degree (MHDL) in agency counseling, and the master's degree (M.Ed.) and the Certificate of Advanced Study (CAS) in school counseling. The counseling program prepares counselors for a variety of work settings including elementary and secondary schools, vocational-technical schools, community agencies, the correctional system and other environments in which the helping relationship can be utilized. Graduates of this program are prepared to:

1. Work individually and in groups with clients on educational, vocational, social, emotional and/or physical concerns.
2. Consult with other professionals concerning the clients' needs.
3. Provide information and understanding to clients in the areas of educational, social and/or vocational planning.
4. Conduct and facilitate local research efforts.

Specific knowledge and skills appropriate to master's or advanced certificate levels will also be developed.

Master's Degrees - MHDL and M.Ed. with a Concentration in Counseing and Guidance. Programs are developed in two tracks, School Counseling and Agency Counseling. The 42-hour program typically consists of the following courses: Core Requirements (9-12): EDU 6100, 6101, 6120 and EDU 6109 or PSY 4140, Skill Development (18 hours): CLG 6100, 6110, 6120, 6430 and 6435; and Specialization (12-15 hours). Six hours are recommended to be taken outside the college.

Course work should be planned with the adviser so that it is consistent with the student's professional goals as well as programmatic and state guidelines.

Students in the School Counseling Track who complete requirements for Graduate Certification in Counseling and Guidance receive the Master of Education degree.

All students must successfully complete either a written comprehensive exam or a master's project as a requirement for graduation. While these would be completed at or near the end of the student's program of study, the student should consult with the adviser within the first 12 hours of course work concerning procedures and preparation for either option.

The Certificate of Advanced Study (CAS) with a Concentration in Counseling and Guidance. The Certificate of Advanced Study is a program for the post-master's student seeking to further his/her skills in counseling and guidance. Students are expected to continue to refine their skills in delivering counseling services as well as to develop competencies in the administration of counseling programs and in supervising other helping professionals.

The Certificate of Advanced Study requires 30 hours beyond the master's degree. A typical program would consist of the following:

Required Courses (15 hours): ADS 7250; EDU 6110; CLG 7801, 7120, 7400 and 7110; and electives (12 hours): Electives will be selected in consultation with the adviser. These electives may include courses offered for graduate credit within the College or in other departments.

Residence Requirement

All course work for the Certificate of Advanced Study Programs must carry UNCC residence credit. Six semester hours of approved course work may be accepted for transfer credit from another accredited institution. Of the course work carrying UNCC residence credit nine semester hours must be earned through registration and completion of these courses on the UNCC campus by one of the following means:

1. Registration for nine semester hours of credit during one semester or two summer sessions. This would be considered full-time work on the campus.
2. Registration for nine semester hours of credit during two consecutive semesters during an academic year. A spring semester of one academic year combined with the fall semester of the following academic year would also meet this requirement.
3. Registration for nine semester hours of credit during a semester and consecutive summer term or a summer term and consecutive semester. Either of the summer terms could be used to meet this requirement.
4. Should unusual or extenuating circumstances prevent a student from meeting the on campus requirement, the student may appeal in writing to the Student Personnel Committee. The Student Personnel Committee would consider the appeal and render a decision.

COURSE DESCRIPTIONS
CHILD AND FAMILY DEVELOPMENT PROGRAM (CFD)

Courses for Undergraduates

(311) **CFD 2111. Child Study: Interpreting Children's Behavior. (3)** A focus on the growth of individuals and the forces which influence this growth. Current theories of child development with emphasis on the complex interaction between heredity and environmental factors.

(313) **CFD 2113. Infant and Early Years. (3)** Examination of development from its beginnings to early childhood with emphasis on theories, research, and other data relative to infancy and the early years and implications for curriculum design.

(315) **CFD 2115. Education of the Young Child. (3)** Developmental needs of children as related to group care situations, curriculum decisions, and the design of early learning environments. Emphasis on current issues, the role of the caregiver (parent and/or teacher), and the process of guiding and teaching young children. (Designed to complement Practicum II.)

(312) **CFD 2412. Practicum I: Child Study: Observing and Recording Children's Behavior. (3)** Investigates the purposes and methods of observation of young children. Content includes observational activities, actual and simulated, individual and group. Students will observe, record, and analyze children's physical - motor, social, emotional, moral and cognitive development using developmental theory. (Designed as the Field Study for CFD 2111.)

(316) **CFD 2416. Practicum II: The Child and the Community. (3)** A supervised practicum with placements in settings depicting care and educational learning experiences for children. Emphasis on program components, the evaluation and development of materials and practices for care and education. Students spend three half-days per week in placement. (Designed as the Field Study for CFD 2115.)

(415) **CFD 3115. Learning and Development. (3)** Examination of the relationship of learning and development with emphasis on conceptualizing child development and interpreting data related to growth and development. Specific attention to the affective, cognitive, and psychomotor domains and theories as seen in a multi-cultural context.

(412) **CFD 3412. Practicum III: The Family and the Community. (3)** Explores the nature of the family as a living, dynamic system within the larger system of society. Seeks to integrate current theories of family interaction, emerging family roles, and alternative patterns of family adjustment with practice in community settings. Students work in settings impacting on family life.

(416) **CFD 3416. Internship in Child and Family Development. (6)** An intensive program working with children and families in the field. The student, in consultation with the adviser, plans the scope and sequence of the internship experience. The focus is on the integration of theory and practice and is planned as a semester's assignment.

(419) **CFD 3619. Senior Seminar in Child and Family Development. (3)** A synthesizing course of study focusing on review, compilation, analysis, and evaluation of the literature, research, and experiences relevant to the student's area of focus. Students will present a plan of action/study for approval prior to registration for this semester.

COUNSELING AND GUIDANCE

Courses for Undergraduates

(463) **CLG 3101. Guidance: Behavior and Growth. (3)** Introduction to counseling with emphasis on understanding approaches and techniques for helping others make decisions directed toward solution of problems and facilitation of self-knoweledge and growth.

Courses for Graduate Students and Advanced Undergraduates

(556) **CLG 5100. Counseling Needs of Women. (3) (3G)** Topics include women's development and needs, the problems they bring to counselors, strategies for helping with them, myths about women and biases in psychological research.

Courses for Graduate Students Only

(673) **CLG 6000. Selected Topics in Counseling. (3G)** Prerequisite: Permission of Department of Human Services. Examination of selected areas of interest in the counseling professions. May be repeated for credit with departmental approval as topics vary.

(615) **CLG 6100. Counseling Theory. (G)** Examination of the counseling relationship from various theoretical frameworks, including client-centered, Gestalt, psychoanalytic, transactional analysis, rational emotive, reality, and behavior theories.

(621E) **CLG 6109. Research in Counseling. (3G)** Examination of principles and practices for research and development of programs in counseling with emphasis on developmental designs, preventive programs, objectives, and organizations.

(640) **CLG 6110. Counseling Techniques. (3G)** Examination of concepts of individual counseling and the means for establishing facilitative relationships including competence in basic counseling skills and interventions.

(665A) **CLG 6115. Person to Person Relationships. (3G)** Examination of concepts and methods for improving human relationships.

(644) **CLG 6120. Group Counseling. (3G)** Investigation of concepts of group counseling and the means for developing facilitative interaction in groups which may include an experiential component as a major learning activity.

(668) **CLG 6140. Elementary School Counseling and Guidance. (3G)** Prerequisites: CLG 6100, 6110, 6120 or permission of the instructor. Introduction to the guidance function in the elementary school with emphasis on the counselor's role in counseling, consulting, and coordinating school and community resources for the optimum benefit of the elementary school child.

(669) **CLG 6150. Occupational Information. (3G)** A counseling-oriented course designed to help the counselor and/or career education teacher develop the ability to use career information with emphasis on understanding of occupational information, systems of collection and usage forms.

(674) **CLG 6152. Approaches to Career Development (K-12). (3G)** Designed to help the counselor or vocational development coordinator gain an understanding of and skills necessary for 1) the development, management and evaluation of a comprehensive, competency - based K-12 career education/counseling program, 2) infusing career education into K-12 curriculum in a counselor/consultant capacity, 3) establishing and leading successful individual and group career development activities.

(664) **CLG 6200. Introduction to Theories of Family Counseling. (3G)** Examination of appropriate interventions in working with families focusing on major theorists and techniques in the field. This course does not prepare students to function as a marriage or family practitioner.

(667) **CLG 6430. Practicum in Counseling and Guidance. (3G)** Prerequisite: CLG 6100 and 6110. Supervision of individual and group counseling interventions conducted in field settings, special attention to the development of evaluative criteria for self and peer assessment. Graded on a Pass/No Credit basis. May be taken once for repeat credit with departmental approval.

(671B) **CLG 6435. Counseling: Seminar and Internship. (3-6G)** Prerequisite: Permission of the Department of Human Services. Supervised experience in a professional setting and a concurrent seminar to analyze behavior, develop materials, study administrative models and examine theory in relation to practice. Offered only on a Pass/No Credit basis.

(672) **CLG 6800. Individual Study in Counseling. (1-6G)** Prerequisite: Permission of Department of Human Services. Designed to permit students to conduct research on selected topics, examine specific counseling literature and the development of special projects under the direction of a faculty.member. May be repeated for credit with department approval. Offered only on a Pass/No Credit basis.

Courses for Advanced Graduate Students Only

(782) **CLG 7110. Individual Assessment. (3G)** Prerequisite: EDU 6109 or PSY 4140. Examination of the major aptitude, intelligence and other psychological tests commonly used in counseling with emphasis on test theory as well as the administration, scoring and interpretation of tests and the communication of their results.

(780) **CLG 7120. Administration and Supervision of Counseling Services. (3G)** Planning, operation, implementation and supervision of counseling and guidance services in schools and agencies with emphasis on the development of administrative and supervisory skills.

(781) **CLG 7400. Sixth-Year Field Experience in Counseling and Guidance. (3G)** Field experience to allow the student to integrate knowledge while under supervision, as well as a weekly seminar for instruction and support. Emphasis on supervisory, consultative and program evaluative competencies consistent with the student's career objectives. Offered on a Pass/No Credit basis. May be repeated for credit.

(772) **CLG 7801. Individual Study. (1-6G)** Prerequisite: Permission of the Department of Human Services. With the direction of a faculty member, students will plan and implement appropriate objectives and learning activities to develop specific areas of expertise through research, readings, and individual projects. Offered only on a Pass/No Credit basis. May be repeated for credit.

HUMAN SERVICES (HSV)

Courses for Undergraduates

(250) **HSV 1100. Exploration of Human Development. (3)** An introduction to the study of human development and learning, designed to allow an individual to look closely at one's self and one's relationship to others.

(400B) **HSV 3101. Cultural and Scientific Impact. (3)** Interaction between the practice of science and its impact upon learning in modern culture.

(420G) **HSV 3102. The Adult Years. (3)** Biological, psychological development pertaining to maturation.

(460) **HSV 3110. Leadership Theory and the Dynamics of Group Processes. (3)** Examination of the dynamics of leadership behavior and group processes. Combines the theoretical and practical aspects of leadership through a variety of teaching/learning formats including small group laboratory methods.

(470A) **HSV 3410. Practicum in Human Services. (1-9)** In an agency setting, practicum provides an opportunity for the student to apply general theory to practical experience, professional and ethical issues, as well as skill building.

(470B) **HSV 3416. Internship in Human Services. (1-9)** In a setting specifically appropriate to his/her area of concentration, the student is involved in a variety of practices which further integrates experiential learning and a theory with emphasis on skill development.

(470C) **HSV 3619. Senior Seminar in Human Services. (3)** A synthesis, coordination, and supplement to previous learning. Students share and evaluate their internship experiences and address specific topics that better prepare them for the job market.

(472) **HSV 3800. Individual Study in Human Services. (1-6)** Prerequisite: Permission of the student's adviser and an appropriate individual study director. Designed to allow a student to pursue individual goals under the supervision of an appropriate faculty member. May be repeated for credit.

Courses for Graduate Students and Advanced Undergraduates

(500) **HSV 4115. Effective Human Systems. (3) (3G)** Systems approach to human development with emphasis on the need for coping skills which allow individuals to function effectively in various settings in life.

(570) **HSV 5000. Selected Topics in Human Services. (3-6) (3-6G)** Prerequisite: Permission of the Department of Human Services. Seminars, independent study and clinical experiences. May be repeated for credit, with approval.

HSV 5103. Substance Abuse: Primary Prevention. (3) (3G) Primary prevention concepts, research, and programming and introduction to psychoactive drugs, their effects on the human physical function, intellectual perception, and psyche.

HSV 5104. Substance Abuse: Approaches to Intervention and Treatment. (3) (3G) Concepts of drug dependency and various approaches to intervention and treatment.

Courses for Graduate Students Only

(606) **HSV 6100. Adjustment Problems, Children and Youth. (3G)** Study of adjustment problems of childhood and adolescence with emphasis on theoretical postulates as they relate to problems of behavior and attitudes in educational environments.

(608) **HSV 6102. Learning and Development. (3G)** In-depth study of selected theories of learning and development.

(621H) **HSV 6110. Parent Education. (3G)** Study of principles and practices for research, development of programs and evaluation in parent education.

(621I) **HSV 6115. Strategies and Designs in Human Development and Learning: Child Advocacy. (3G)** Study of principles and practices for educational personnel to employ as child advocates.

(622) **HSV 6120. Creativity, Learning Environments and Experiences. (3G)** Investigation of theories of creativity and their relationship to curriculum development.

(625F) **HSV 6130. Concepts of Teaching and Learning: Children's Play. (3G)** Examination of theories, trends and current practices in children's play.

Courses for Advanced Graduate Students Only

(735) **HSV 7135. Readings in Learning and Development. (3G)** Examines research data about the development of human behavior interpreted in terms of multiple disciplines, including psychology, anthropology and ethnology.

Air Force Aerospace Studies Area (Air Force ROTC)

Associate Professor (Mil.): Patrick
Assistant Professors (Mil.): Smith, Woods

The Air Force Reserve Officer's Training Corps (AFROTC) program at the University of North Carolina at Charlotte provides two programs for students to qualify for a commission as a second lieutenant in the Air Force. The general objective of the Air Force program is to instill in each student a basic understanding of associated professional knowledge, a strong sense of personal integrity and individual responsibility, an appreciation of the requirements of national security, and an opportunity to learn and develop leadership ability. The 100 and 200 courses are available to all University students whether or not they wish to qualify for a commission.

FOUR-YEAR PROGRAM

The four-year program consists of classroom and laboratory work during the four undergraduate years and four weeks of field training, usually attended between the sophomore and junior years, at an airbase.

During the first two years the program acquaints students with aerospace history, the mission and organization of the Air Force, including technological advances and current research and development activities. Students also begin leadership training. Students practice leadership talents and abilities by assuming positions of responsibility in the Cadet Corps.

TWO-YEAR PROGRAM

All requirements for commissioning can be completed in the two-year program. Students may apply for entry if they intend to complete two more full academic years either *undergraduate, graduate* or a *combination of both*. Prior to formal enrollment, each student successfully completes six weeks of field training at an Air Force base. All students in the two-year program receive $100 a month tax free subsistence allowance.

SCHOLARSHIP PROGRAM

Air Force ROTC awards scholarships at the freshman, sophomore and junior levels. They are available to qualified cadets in the two-year and four-year programs. Scholarships are given on a semester basis. The maximum is eight semesters (four years), the minimum four semesters (two years). Scholarships of seven, six and five semesters are also available.

Enrollment in the Aerospace Studies courses is a requirement for scholarship eligibility. Scholarships cover full tuition, laboratory expenses, incidental fees and books. Scholarship cadets also receive $100 a month tax free subsistence.

Four-year scholarships are also available to high school students. High school students interested in making application should write: Air Force ROTC (PA), Maxwell AFB, Alabama 36112 during their junior year or before December 15 of their senior year.

SCHOLARSHIP PROGRAM

Air Force ROTC students who accept a scholarship must agree to successfully complete at least one semester of college instruction in a major Indo-European or Asian language before commissioning.

Scholarship recipients are required to successfully complete an English composition course prior to entry into the junior class.

COMMISSION REQUIREMENTS

To be eligible for the Air Force ROTC advanced program (final two years) and commissioning, a student must be a citizen of the United States, physically qualified for commission in the Air

Force, not under 14 years of age and, upon graduation, no more than 30 years of age. For those with prior military service, commissioning must occur not later than age 35.

In addition, cadets must pursue work leading to at least a bachelor's degree and be willing to sign a formal agreement at the beginning of the advanced course or upon initiation of a college scholarship. The agreement, an enlistment into the Air Force Reserve, obligates the student to remain in the ROTC program, accept a commission and serve the required period in the Air Force upon graduation. Additionally, cadets must demonstrate proficiency or successfully complete a course in mathematical reasoning before commissioning.

LEADERSHIP LABORATORY

Each cadet participate one hour per week during each semester of enrollment. Leadership Laboratory is scheduled the smae day each week for the entire Cadet Corps. The program is designed to facilitate effective learning and development of management and subordinate relationships.

The objective is to provide a laboratory environment in which each student receives an opportunity to learn and develop leadership and management abilities. Cadets plan, organize and carry out the cadet group program with minimal guidance from the staff.

Cadets are promoted to cadet officer grades in the corps commensurate with their knowledge, experience and demonstrated performance. Periodically, they move up the chain of command to positions of greater responsibility.

COURSE DESCRIPTIONS

(101) **AS 1101. U.S. Air Force Today. (1)** Study begins with discussion of the citizen soldier and relationships between war and morality. Subsequent lessons deal with mission and organization of the U.S. military forces under the President with emphasis on U.S. Air Force mission and organization, U.S. human rights policy and perceptions of the Soviet threat. Attention is given to the identification of strengths and weaknesses in the student's writing skills.

(101L) **AS 1101L. U.S. Air Force Today. (0)** Leadership Lab. Corequisite: AS 1101.

(102) **AS 1102. U.S. Air Force Today. (1)** A continuation of AS 1101.

(102L) **AS 1102L. U.S. Air Force Today. (0)** Leadership Lab. Corequisite: AS 1102.

(201) **AS 2101. Development of Air Power. (1)** Deals with the nature of war and traces the development of U.S. air power, including airpoer organizations, missions, doctrines and strategies, from early military use of balloons to the contemporary use of space vehicels. These developments, particularly more recent ones, are discussed in the contexts of evolving national policies and the changing global political situation. Attention is given to the identification of strengths and weaknesses in the student's speaking skills.

(201L) **AS 2101L. Development of Air Power. (0)** Leadership Lab. Corequisite: AS 2101.

(202) **AS 2102. Development of Air Power. (1)** A continuation of AS 2101.

(202L) **AS 2102L. Develpoment of Air Power. (0)** Leadership Lab. Corequisite: AS 2102.

Courses for Advanced Undergraduates

(301) **AS 3101. Defense Administration and Military Management. (3)** Survey of the problems in defense administration and military management aimed at integrating concepts and ideas from different academic disciplines and contrasting organizational developments.

(301L) **AS 3101L. Defense Administration and Military Management. (0)** Leadership Lab. Corequisite: AS 3101.

(302) **AS 3102. Leadership and Management. (3)** A continuation of AS 3101.

(302L) **AS 3102L. Leadership and Management. (0)** Leadership Lab. Corequisite: AS 3102.

(401) **AS 3201. The Changing Military Profession in a Democratic Society. (3)** Analysis of the role of the Armed Forces as an integral element of contemporary American society including a detailed examination of the broad range of American civil-military relations and the environmental context in which U.S. defense policy is formulated and implemented.

(401L) **AS 3201L. The Changing Military Profession in a Democratic Society. (0)** Leadership Lab. Corequieiste: AS 3201.

(402) **AS 3202. Strategy and the Policy Process. (3)** A continuation of AS 3201.

(402L) **AS 3202L. Strategy and the Policy Process. (0)** Leadership Lab. Corequisite: AS 3202.

Military Science Area (Army ROTC)

Professor (Mil.): Bachman
Assistant Professors (Mil.): Chuber, Howell

Students at the University of North Carolina at Charlotte may elect to participate in the Army Reserve Officers' Training Corps (ROTC) area as part of their academic curriculum. Students successfully completing the Military Science curriculum will receive 19 credit hours applicable toward general elective requirements and will be commissioned second lieutenants in the Regular Army, Army Reserve or National Guard. Students will normally enroll in a military science course or activity each semester.

Army ROTC is a four-year area consisting of the **Basic Course** (freshman and sophomore years) and the **Advanced Course** (junior and senior years). *No military commitment is incurred for participation in the Basic Course.* ROTC is open to both men and women.

Eligibility for admission into the Advanced Course is on the basis of demonstrated officer potential and a physical examination. Members of the Reserve Components, honorably discharged veterans and students with a JROTC background may be eligible for placement into the Advanced Course provided they are otherwise fully qualified. Transfer students with two or more years remaining toward degree completion may also qualify for direct entry into the Advanced Course by participation in paid summer training. Advanced Course students attend a paid six-week summer camp prior to commissioning.

All students enrolled in the Advanced Course receive a tax-free subsistence allowance of $100 per academic month. One, two, and three-year scholarships are awarded on a competitive basis. Scholarships pay the full cost of tuition, textbooks and lab fees as well as the monthly subsistence allowance. All uniforms and textbooks for ROTC instruction are provided at no cost to the student. The ROTC student body is organized as a corps of cadets, which sponsors several social and professional enrichment activities such as the: ROTC Honor Guard, Scabbard and Blade Society (a National Military Fraternity), the RAIDERS (a commando oriented organization) and the Cadet Association.

COURSE DESCRIPTIONS

Courses for Undergraduates

(101) **MS 1101. Basic Course I. (1)** Introduction to ROTC and the U.S. Army including the rationale of the national defense structure and the mission and role of the Army. Introduction to modern theories of leadership and their application to today's environment. One lecture hour per week offered in the fall and spring semester and summer session.

(102) **MS 1102. Basic Leadership Laboratory I. (1)** Practical work in basic military skills and physical ability development. Introduction to land navigation, drill and cermony, communications, and the Army's standard individual weapons with emphasis upon team work and confidence building through participation in leadership activities. Three laboratory hours per week offered in the fall and spring semester and summer session.

(201) **MS 2101. Basic Course II. (2)** Introduction to map reading techniques, small unit tactics and the role of the junior officer in troop leading. First aid in a tactical environment will be surveyed. Three lecture hours per week offered in the fall and spring semester and summer session.

(202) **MS 2102. Basic Leadership Laboratory II. (1)** Emphasis upon developing proficiency in basic military skills with students assuming leadership roles when the class functions as a military unit. Assertive, confident leadership through knowledge and practice will be stressed. Three laboratory hours per week offered in the fall and spring semester and summer session.

Courses for Advanced Undergraduates

(301) **MS 3101. Advanced Course I. (3)** Prerequisite: Basic Course or consent of the professor of military science. Introduction to the advanced ROTC area and an examination of branches of the Army, military teaching principles, management and small unit tactics, including refresher and advanced training in communications, drill and ceremonies, land navigation and physical fitness. Students must be successfully pursuing a commission in the Regular Army, Army Reserve or Army National Guard. Three lecture hours per week offered only in the fall semester.

(302) **MS 3102. Advanced Course II. (3)** Prerequisite: MS 3101 or consent of the professor of military science. Designed specifically to prepare cadets for attendance at advanced camp with emphasis on mastering skills necessary to operate and maintain military equipment and developing self-confidence. Three lecture hours per week offered only in the spring semester.

(303) **MS 3103. Advanced Leadership Laboratory I. (1)** Prerequisite: MS 3101 or consent of the professor of military science. Practical application and additional development of military skills and leadership principles with emphasis on mastery of all previous military skills with much of the training being performance oriented. Students develop their leadership by rotating through various leadership positions during the conduct of their training. Three laboratory hours per week offered only in the spring semester.

(401) **MS 3201. Advanced Course III. (3)** Prerequisite: MS 3102. Examination of staff organization procedures and purpose including a detailed analysis of the total Army concept (Regular Army, Army Reserve, National Guard). Practical application of military briefing techniques and examination of the relationship of the Army officer and society through a survey of military history. Three lecture hours pwer week offered in the fall semester only.

(402) **MS 3202. Advanced Course IV. (3)** Prerequisite: MS 3201. Examination of military law, professional ethics, personnel and training management with special emphasis upon the student's smooth transition to active service or service with the reserve components in this final precommissioning course. Three lecture hours per week offered in the spring semester only.

(403) **MS 3203. Advanced Leadership Laboratory II. (1)** Prerequisite: MS 3201. Extensive practical work in military planning and instructional techniques with special emphasis upon development of applied leadership skills necessary as a commissioned officer. Three laboratory hours per week offered only in the spring semester.

College of Engineering

Dean: Professor Snyder
Associate Dean: Professor Evett
Director of Engineering Co-Op: Professor Bayer

The College of Engineering offers baccalaureate degree programs in engineering, engineering technology, and computer science and a graduate program leading to the degree of Master of Science in Engineering.

The Engineering Technology program is designed to provide an opportunity for graduates of two-year associate degree engineering technology programs to continue their education at the baccalaureate level. Details regarding this program are found under the Department of Engineering Technology section of this catalog.

Details regarding the Computer Science Program are found under the Department of Computer Science section of this catalog.

BACCALAUREATE PROGRAMS IN ENGINEERING

The baccalaureate programs in engineering offer professional engineering education which can be used as the foundation for several different career objectives:

1. Some students will wish to prepare for a career as professional engineers in industry, in business or consulting.
2. Some will look toward graduate study in order to prepare for careers in research, development or teaching.
3. Still others will desire a more general and more liberal engineering education with the objective of keeping a variety of career avenues open.

Whatever the career objective of the student, a sound engineering educational program must include substantial content in: (1) the humanities and social sciences, (2) the physical sciences, (3) mathematics, and (4) the engineering sciences. Also, (5) there must be an in-depth experience in creative engineering design. The student expecting to accept employment in industry will probably wish to emphasize the engineering design and engineering science aspects of his or her program, while the student preparing for graduate study might emphasize the mathematics and science aspects. A high percentage of engineering graduates ultimately take on executive and management responsibilities in industries and firms which are based upon engineering products and engineering services. Accordingly, some students will want to construct an elective option in their program which includes business administration and economics offerings, and other courses which will strengthen their communication skills.

The engineering curricula prescribed by the faculty of the University of North Carolina at Charlotte give thorough attention to the five essential components of a sound program of study. Those elements which are considered basic to every program of study are specified in the curriculum outline and result in freshman requirements which are essentially the same for all engineering students, except for the electives in the humanities and social sciences. The common basic core serves not only as the educational foundation for the professional engineering courses later in the program but also provides solid preparation for the first phase of the Professional Engineering Registration Examinations (EIT Exam).

Humanities and social science electives must be selected from courses approved by the student's department so as to attain a broad background in the humanities and social science areas as well as some depth in at least one such area.

Each student must work out with his or her adviser a study plan indicating the objectives of the educational program and how the choice of electives meets these objectives. The requirement of planning both the technical and non-technical electives program is intended to assure maximum utilization of curriculum flexibility by actively involving the student in a personalized program of study which will be sound in the professional sense, will recognize and take advantage of the

student's best motivations and highest capabilities and will result in a broad and deep educational preparation for service to and fulfillment in the current technological society.

Academic Progression Requirements

Lower Division. The lower division of the engineering program is essentially the first two years of study. Although not identical for all three major programs, there is enough commonality so that the academic progression requirements are the same for all majors (including undecided majors).

Requirements:

1. Maintain overall GPA $>$ 2.0 and an engineering course GPA $>$ 2.0.
2. Achieve C's or better in CHE 1101, MAT 1141 and 1142, PHY 2221, EGR 1100, and EE 1102 or ME 1102 or CE 1102.
3. May not accumulate a total of more than three repeats in math, physics or engineering courses. *In no case may a single course be repeated more than once* without the dean's approval.

Upper Division. The upper division of the engineering program is essentially the last two years of study *in a department major.* There are no undeclared major students in the upper division.

Requirements:

1. Admission to Upper Division: A student may be admitted to the upper division upon:
   (a) Completion of a minimum of 59 semester hours of lower division courses, with an overall GPA of 2.00 or better including
   (b) Completion of all lower division major courses with a GPA of 2.00 or better; lower division mathematics; and all freshman courses and
   (c) Accumulation of not more than three repeats in mathematics, physics or engineering courses.
2. Transfer students are normally admitted to the lower division of the bachelor's program in engineering.
3. Students who change their major are admitted to lower division only.
4. A student in lower division may, with the approval of the adviser, take a maximum of 12 credit hours of upper division courses. In no case may a student take an upper division course which has an upper division course as a prerequisite.

Second degree candidates will be evaluated on an individual basis and may be admitted to the lower or upper division of a department depending on the number of courses applicable to the departmental program. A GPA 2.5 for the first degree will be required for admission.

Discontinuance

A student who is deemed to be making unsatisfactory academic progress will be recommended for discontinuance from the engineering program. Some of the conditions under which students will be recommended for discontinuance include:

1. Failure to be admitted to the upper division.
2. Failure to satisfy any prerequisite course after one repeat of that course.
3. Two F's in any course in the program.
4. A quality point deficit of 14 or more in engineering courses.
5. Two successive semesters with a GPA of less than 2.0 in engineering courses.

The procedure for appeal of any discontinuance follows the standard policies of the College of Engineering.

Pre-Engineering

Students not admitted directly to the lower division but who otherwise meet the requirements for admission to the College of Engineering (see p. XX), will be admitted to the Pre-Engineering program. Students in this program will be advised through the Office of the Dean of Engineering as to the proper course work appropriate for their individual needs. Students in Pre-Engineering may be admitted to the lower division of a department at the end of the freshman year or at any time thereafter when satisfactory progress has been demonstrated. Such progress requires a GPA $>$ 2.0 and C's or better in CHE 1101, MAT 1141 and 1142, PHY 2221, EGR 1100, and EE 1102 or ME 1102 or CE 1102 with no more than a total of two repeat grades. In no case may a single course be repeated more than once without the dean's approval.

Two Year Rule. Any engineering student who has been suspended for academic reasons from UNCC is eligible for one readmission to engineering after a minimum period of two years from the last semester of enrollment at UNCC. Under this rule only those courses for which the student has received a grade of C or better can be used to satisfy degree requirements. His or her quality point average will be based only on work attempted after readmission. Eligibility for continued enrollment is determined as in the case of transfer students.

Any student who voluntarily left UNCC and has not attended UNCC for two or more years is eligible for readmission under this two year rule.

To qualify for honors or high honors, a student must complete at least 48 hours in residency in computing the grade point average after readmission to UNCC.

Cooperative Education. Students in the College of Engineering may desire to obtain practical work experience while pursuing their degree by participating in cooperative education whereby a student alternates semesters of academic study with semesters of work experience in industry. The work experience is under the direction of the College's Cooperative Education Office and is closely related to the student's field of study.

To be eligible for the Co-op program, an engineering or computer science student must have completed at least 24 credit hours at UNCC including a number of specified courses with a minimum GPA of 2.25. A transfer student is expected to have completed at least 12 hours at UNCC. A BET student must have earned an Associate of Applied Science degree with GPA of 2.50 or better (out of 4.00).

For a graduate to be designated as a Co-Op student, the student must participate in at least three semesters of work experience. Consequently, participation in Co-op Education usually means that the student will take five years to complete the engineering or computer science degree programs or three years (at UNCC) to complete the BET degree program.

Students interested in learning more about the advantages and opportunities of participating in this program should contact the Engineering Co-op Office in the College.

MASTER OF SCIENCE IN ENGINEERING

The Master of Science in Engineering program provides an opportunity for graduate-level engineering education both to improve on-the-job skills and to provide an advanced degree program for career development. The master's program is of an applied and professional nature though flexible enough to permit inclusion of management, communications and other subjects appropriate for total career development. In most respects the program is a one-year (30 hours) extension of the College's baccalaureate engineering programs and is administered by the three participating departments — Civil Engineering; Electrical Engineering; and Mechanical Engineering and Engineering Science. Students desiring to enter the program must present evidence of satisfactory undergraduate preparation in engineering, usually manifested by possession of a baccalaureate degree in some accredited program of engineering.

Degree Requirements

1. The satisfactory completion of a minimum of 30 hours of approved graduate credits as prescribed by the student's department and program committee and fulfilling the following:

   A minimum of 18 semester hours of graduate course credit in a major area of engineering, no more than six of which can be for a research thesis or a creative design project; or, alternatively, no more than three of which can be for a special problem report. The decision as to whether a program will include a thesis, design project or problem report is to be made on an individual basis at the time of filing the student's Plan of Study (see page 284).

   A minimum of 12 semester hours of approved elective graduate course credit. In order to broaden the student's exposure to subject matter and faculty expertise, at least six hours of these electives must be in mathematics, science or another engineering department. Inclusion of business and/or communications courses is permitted.

2. Of the required minimum of 30 semester hours, at least 18 must be in courses primarily for graduate students, i.e., no more than 12 hours of the required 30 can be undergraduate level courses approved for graduate credit.

3. Academic Standards: Only the grades of A, B or C shall be accepted as credit toward the MSE degree. A grade of U in any graduate course will terminate the student's enrollment in the MSE program subject to re-admission as prescribed in the University Catalog. Similarly, an accumulation of three C grades will result in termination of the student's enrollment, subject to readmission to the program.

   A student in any graduate program is required to maintain satisfactory progress toward the degree. Continued enrollment is at all times subject to review on the basis of academic record and of actions with regard to observance of University rules and regulations.

   Students admitted to full standing will normally be permitted to re-enroll in successive terms, subject to satisfactory performance on course work and to load limitation imposed by their employers and the University. However, they must complete formal registration within the designated registration period. A student admitted conditionally to full standing will be permitted to continue, subject to satisfactory academic performance, until he or she has attempted 12 semester hours of graduate course work, at which time admission status will be reviewed by the major department and the EGC after which the student will be advised as to his or her eligibility to continue.

   Students admitted to the unclassified status are permitted ot take up to nine semester hours only and should fulfill requirements for admission to full standing by the application date for the following term if they wish to take additional course work.

   To qualify for the MSE degree, the student must have a grade point average of at least 3.00 based upon all courses acceptable for graduate credit for which he/she received a grade from the University.

4. Transfer and residence credit are to be in accordance with University regulations.

5. All work offered for the degree of Master of Science in Engineering must be completed within a six-year period.

Plan of Study and Admission to a Candidacy

1. Plan of Study

   After completing at least nine but no more than 18 semester credit hours of graduate study, the student shall file a *Plan of Study.* This plan is formulated by the student with the advice and consent of his/her Graduate Program Adviser and the student's Program Committee and submitted for approval to the major department and the College's Engineering Graduate Committee. This plan is to indicate all course work and any other requirements (thesis, project problems, deficiencies, etc.) which the student is expected to fulfill satisfactorily before the awarding of the MSE degree.

   Relatively minor changes in an approved Plan of Study (e.g., change in a date for when a course is to be taken, or a direct substitution of one course for another course *in the same area, etc.)* may be made at the discretion of the student's adviser and Program Committee, although such changes shall be so indicated in the student's Admission to Candidacy.

   However, significant changes such as a change of adviser, change of research topic, change of minor area, etc., shall be submitted immediately to the EGC for its review to ensure that such changes conform to the existing guidelines for the MSE program.

2. Student's Program Committee

   Each student's Program Committee shall be composed of not less than three members of the graduate faculty, *one of whom shall be from a department other than the student's major,* with the Graduate Program Adviser serving as chairman of the committee. The committee is recommended by the department after appropriate consultation between the adviser and student, and is subject to approval by the EGC at the time of submission of the Plan of Study.

   If the student is to pursue an industrially oriented design project through an internship in a local industrial or governmental organization, the person supervising the internship project shall be added to the Program Committee upon approval of the project by the student's Program Committee.

The functions of the student's Program Committee are to participate in planning the student's program, evaluate his or her academic progress and make appropriate recommendations, evaluate the student's research thesis or design project, administer the comprehensive final examination, and, finally, make the recommendation as to the candidate's qualifications for the degree.

3. Admission to Candidacy

Upon completion of a substantial amount of graduate work and in no case later than two weeks prior to the beginning of the semester in which the student expects to complete all requisites for the degree, the student shall file for Admission to Candidacy on a form supplied by the Graduate Office. This application is a checksheet approved by the adviser, department chairman, and the College dean listing all course work to be offered for the degree (including transfer credit and courses in progress). A tentative or, if possible, actual date for the final examination should be agreed upon and indicated on this application. The date should be realistic and allow ample time for completion and review of the thesis or project.

Final Examination

Upon completion (or near completion) of all degree requirements as indicated in the Admission to Candidacy, the candidate shall stand for a final comprehensive examination(s). This examination(s) (written, oral or both) is to be set and administered by the student's Program Committee and is to cover those areas of study and/or research as deemed appropriate by the committee.

The result of this examination and the committee's recommendation as to the candidate's qualifications for the degree shall be transmitted to the EGC for review and subsequent transmittal to the proper University authority.

COURSE DESCRIPTIONS

ENGINEERING

Courses for Undergraduates

(100) **EGR 1100. Introduction to Engineering. (1)** Introduction to engineering as an area of study and as a career; engineering morality and public responsibility; professional development and professional registration.

(390) **EGR 3590. Engineering Cooperative Education Experience. (0)** This course is for Co-op students during the semester that they are working. No credit is given.

(385) **EGR 3695. Engineering Cooperative Education Seminar. (1)** This course is required of Co-op students preceding their first work assignment for orientation purposes and immediately following each work assignment for presentation of engineering reports on work done the prior semester.

CONTINUING ENGINEERING STUDIES

The College of Engineering sponsors various special educational programs for practicing engineers, technologists, technicians and others in addition to its regular academic degree programs and courses. These include conferences, short courses, seminars and other continuing education programs designed to aid those practicing in the technical professions and occupations to keep abreast of the latest developments in the rapidly expanding technology. The courses listed below are offered on a periodic basis, while many others are offered on demand.

PROFESSIONAL ENGINEERING-BASICS. Forty-five hours of work reviewing mathematics, chemistry, economics and the basic engineering sciences as preparation for the Professional Engineering Basics (EIT or Exam I) Examination.

PROFESSIONAL ENGINEERING-APPLIED. Fifty-five hours of work reviewing applications in chemical, civil, electrical and mechanical engineering and engineering economics as preparation for the Professional Engineering Principles and Practice (PE or Exam II) Examination.

SURVEYING. Eight hours of work reviewing land surveying as preparation for the land surveying examination.

Anyone desiring information on these courses or requesting special offerings may contact the Office of Continuing Education and Extension.

LIBERAL ENGINEERING STUDIES

The impact of technology on man's present condition and future prospects has until now received little formal study. The College of Engineering has attempted to respond to a sincere concern on the part of many students who realize that there are important social and environmental problems resulting from the radical present and future changes in technology. It is the aim of the Liberal Engineering Studies to put these problems and their possible technical solutions into perspective.

The following courses are intended primarily for non-engineering students who wish to explore various aspects of the societal-technological interactions. Engineering students may enroll but may not use these courses to fulfill requirements for any engineering degree.

(111) **LE 1111. Technological Bases of Society I. (3)** Concepts underlying the systems which relate directly to the life of the individual in relation to the field of engineering. Emphasis on scientific ideas which are relevant to the student—which he or she should understand to participate in the decision of an age of rapidly changing technology. Specific topics include decision making, optimization, modeling and systems. (May be taken with or without LE 1151.)

(112) **LE 1112. Technological Bases of Society II. (3)** Prerequisite: LE 1111. A continuation of LE 1111. Introduction to technological concepts which are applicable to the solution of problems of a social and economic, as well as a technical nature—problems which are rapidly becoming the frame of reference for contemporary society. Specific topics include patterns of change, feedback, stability and machines and systems. (May be taken with or without LE 1152.)

(151) **LE 1151. Technological Bases of Society-Laboratory I. (1)** Corequisite: LE 1111. A laboratory course designed to illustrate the concepts presented in LE 1111. Simulation of real life situations using simple laboratory equipment. Two laboratory hours per week.

(152) **LE 1152. Technological Bases of Society-Laboratory II. (1)** Prerequisite: LE 1151, corequisite: LE 1112. A laboratory course designed to illustrate the concepts presented in LE 1112. A continuation of LE 1151. Two laboratory hours per week.

(490) **LE 3090. Special Topics in Liberal Engineering. (1-4)** Prerequisite: consent of the instructor. Supervised study or travel opportunities which are beyond the scope of existing courses. May be repeated for credit.

(311) **LE 3111. Technology in Historical Perspective. (3)** Prerequisite: junior standing. Selected historical cases in science, applied science and technology are reviewed to show the impacts that technological advances have had on man's world. Emphasis is placed on the technologies and their effect on man's physical environment rather than on the resulting change in man's viewpoint toward society, economics or politics.

(314) **LE 3114. Problems in Environmental Control (3)** Prerequisite: junior standing. Study of a range of environmental problems of interest to the class. The tracing of problem cases to their technological origins, the identification of available, feasible, technological origins, the identification of available, feasible, technological solutions to the specific problems treated. On site inspection of industrial sources of pollution will be made in a series of field trips.

(316) **LE 3116. Energy, Power and Conservation. (3)** Prerequisite: junior standing. A survey of historic, current and future power sources and devices, including waterwheels and windmills, steam engines and turbines, internal combustion and jet engines, fission and fusion reactors and geothermal, tidal and solar power. Fuel resource reserves, costs, benefits and conservation will be studied.

Department of Civil Engineering

Chairperson: Professor King
Professors: Bayer, Bell, Evett
Associate Professors: Janardhanam, Robertson, Wu
Lecturers: Browning, Graham, Hilger

A major role of the civil engineer is to focus man's scientific and technological skills on the creation of physical facilities. Construction of these facilities advances society toward such basic goals as economic development, environmental protection and social well-being. The civil engineer may be involved in the design and construction of buildings, bridges, dams and other structures; in the development of water resources for urban use, industry and land reclamation; in the transmission of water and control of rivers; in the control of water quality through purification and proper waste treatment; in transportation systems including highways, mass transit, airports, railroads, pipelines, canals and harbor facilities; in the problems associated with man's environment including air pollution, noise pollution, ecological effects, land development, urban and regional planning; and in a wide range of services involving the health, safety and welfare of the public. The civil engineer must bring about a satisfactory blending of the constructed facility with the natural environment and the social environment, creating an optimum relationship between the human and the environment.

The objective of the Civil Engineering program is to provide the student with not only the latest technology but also opportunities to develop the social science and management skills which are required to assess needs, evaluate social and environmental impacts, and operate the engineering systems. Such opportunities are insured through the broadened curriculum found in the Department, and the encouragement of interactions with other departments and colleges of The University.

Some students will wish to plan early in their undergraduate careers for continuation of their engineering studies beyond the first degree. The large number of fields of graduate study which can logically follow the curriculum offered by the Department of Civil Engineering may influence how each student plans a program of study. The technical elective sequence allows flexibility for concentration in specific areas, and each student will design a technical elective program with the advice and approval of his or her adviser in order to achieve an individual goal. The technical elective courses must contain at least six hours of course work dealing with engineering science, analysis, synthesis, or design with the remaining nine hours being in engineering, science, mathematics, business, or communications.

The program in Civil Engineering is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology, a specialized accrediting body recognized by the Council on Postsecondary Accreditation.

CURRICULUM OUTLINE
FOR THE
BACHELOR OF SCIENCE IN CIVIL ENGINEERING

Freshman Year

MAT 1141 Calculus I	4	MAT 1142 Calculus II	4
CHE 1101 Principles of Chemistry	3	PHY 2221 Dynamics	3
CHE 1101L Chemistry Lab	1	PHY 2221L Experimental Physics I	1
ENG 1101 English	3	Science Elective	3
EGR 1100 Intro. to Engineering	1	CE 1102 Computer Applications	2
Humanities or Social Science	3	Humanities or Social Science	3
	15		16

Sophomore Year

MAT 2141 Calculus III	3	MAT 2171 Differential Equations	3
MAT 2122 Elements of Statistics	3	PHY 2241 Intro. to Modern Physics	3
PHY 2231 Electricity & Magnetism	3	EGS 2142 Engineering Mechanics II	3
PHY 2231L Experimental Physics II	1	EGS 3141 Intro. to Solid Mechanics	3
EGS 2141 Engineering Mechanics I	3	CE 2152 Measurements Lab	2
Humanities or Social Science	3	ECO 2102 Principles of Economics	3
CE 2101 Engineering Drawing	2		
	18		17

Junior Year

ME 3114 Intro. to Fluid Mechanics	3	ME 3111 Thermodynamics I	3
EE 2161 Basic Electrical Engr. I	3	CE 3152 Transportation Lab	2
CE 3121 Structural Analysis	3	Technical Elective	3
CE 3141 Environmental Engr. I	3	Technical Elective	3
CET 3151 Environmental Lab	2	Technical Elective	3
CE 3161 Transportation Engr.	3	Humanities or Social Science	3
	17		17

Senior Year

CE 3221 Steel Design	3	CE 3252 Geotechnical Lab	2
CE 3225 Concrete Design	3	CE 3272 Systems and Design II	3
CE 3251 Concrete and Steel Lab	2	CE XXXX Department Elective	3
CE 3268 Geotechnical Engineering	3	Technical Elective	3
CE 3271 Systems and Design I	3	Technical Elective	3
Humanities or Social Science	3	CE 3281 Professional Development	1
	17		15

CIVIL ENGINEERING

THE 5000-LEVEL GRADUATE COURSES ARE FIRST-YEAR GRADUATE COURSES ALTHOUGH SOME ADVANCED SENIORS MAY ENROLL WITH PERMISSION OF THE DEPARTMENT OFFERING THE COURSE. THE 6000-LEVEL COURSES ARE FOR GRADUATE STUDENTS ONLY.

STRUCTURAL ENGINEERING

(321) **CE 3121. Structural Analysis. (3)** Prerequisites: EGS 3141 and MAT 2171 and corequisite CE 2152. Analysis of statically determinate and indeterminate beams, trusses and frames to include shear and moment diagrams, rough deflected shapes and deflections. Influence lines and riteria for moving loads. Indeterminate analyses to include methods of consistent deflection, clope deflection and moment distribution.

(421) **CE 3221. Structural Steel Design I. (3)** Prerequisites: CE 3121 and EGS 3141. Analysis and design of structural steel components with emphasis on the fundamental theories necessary for a thorough understanding of the design procedure. Design philosophies and types of steel structures. Columns, tension members and laterally supported beams are considered. General flexural theory including bending of unsymmetrical sections. Current AISC Specifications used.

(425) **CE 3225. Reinforced Concrete Design I. (3)** Prerequisites: CE 3121 and EGS 3141. Analysis and design of reinforced concrete components with emphasis on fundamental theories. Mechanics and behavior of reinforced concrete. Flexural members to include singly and doubly reinforced beams of various cross sections (rectangular, T-beams, joists, one-way slabs and others.) Shear in beams and columns. Short columns to include uniaxial and biaxial bending. Construction of short column interaction diagrams. Introduction to footings. Current ACI Specifications used.

(451) **CE 3251. Concrete and Steel Laboratory I. (2)** Prerequisites or corequisites: CE 3221 and CE 3225. Design of concrete mixes; testing of standard concrete cylinders, beams and columns. Testings of steel tensile members and beams. Analysis and design of simple structural systems. One hour of lecture and three laboratory hours per week.

(422) **CE 4222. Structural Steel Design II. (3) (3G)** Prerequisite: CE 3221. Analysis and design of structural steel components and systems with emphasis on the fundamental theories necessary for a thorough understanding of the design of complete structures. Compression members affected by local buckling, beams with lateral-torsional buckling, continuous beams and beam columns are covered. Welded and bolted connections. Current AISC Specifications used.

(424) **CE 4224. Advanced Structural Analysis. (3) (3G)** Prerequisite: CE 3121. A continuation of CE 3121. Fundamental and special methods of analysis of statically determinate and indeterminate structures. Topics include deflection theory, energy theory, variable cross-section analysis, multistory moment distribution.

(426) **CE 4226. Reinforced Concrete Design II. (3) (3G)** Prerequisite: CE 3225. Analysis and design of reinforced concrete components and systems with emphasis on the fundamental theories necessary for a thorough understanding of concrete structures. Concentrically loaded slender columns, slender columns under compression plus bending. Wall footings and column footings. Analysis of continuous beams and frames. Total design project involving the analysis and design of a concrete structure. Current ACI Specifications used.

(538) **CE 5108. Finite Element Analysis and Applications. (3) (3G)** Prerequisite: Consent of instructor. Finite element method and its application to engineering problems. Application of displacement method to plane stress, plane strain, plane bending and axisymmetrical bodies. Topics include but are not limited to dynamics, heat transfer, fluid mechanics, structural methanics, and electric fields.

(522) **CE 5122. Advanced Topics in Structural Steel. (3) (3G)** Prerequisites: CE 3222 or consent of instructor. Theory of plastic-behavior steel structures; current topics in structural steel as they develop.

(528) **CE 5128. Matrix Methods of Structural Analysis. (3) (3G)** Prerequisite: consent of instructor. Derivation of the basic equations governing linear structural systems. Application of stiffness and flexibility methods to trusses and frames. Solution techniques utilizing digital computer.

(629) **CE6129. Structural Dynamics. (3G)** Prerequisite: consent of instructor. Analysis and design of structures subject to dynamic and static loading, single degree of freedom approach, vibration of structural components including damping and elasto-plastic behavior.

ENVIRONMENTAL AND WATER RESOURCES ENGINEERING

(341) **CE 3141. Environmental Engineering I. (3)** Prerequisite: MAT 2171; Corequisites: CE 2152 and ME 3114. General overview of environmental problems. Topics in water resources engineering including: development of surface and groundwater sources, analysis of water collection, transmission and distribution systems, design of sanitary and stormwater drainage systems, and stormwater management. Introduction to water quality modeling.

(351) **CE 3151. Environmental Laboratory I. (2)** Prerequisite: CHE 1101L and corequisite: CE 3141. Laboratory problems in environmental engineering. Emphasis on analysis and presentation of results as well as on the significance of results as they affect theory and/or practice. One hour of lecture and three laboratory hours per week.

(442) **CE 4142. Environmental Engineering II. (3)(3G)** Prerequisite: CE 3141. Analysis and design of water and wastewater treatment processes including: physical, chemical and biological treatment; and treatment and disposal of sludge. Computer-aided design of treatment systems. Control of toxic and hazardous wastes.

(544) **CE 5144. Engineering Hydrology. (3)(3G)** Admission by consent of instructor. A quantitative study of the various components of the water cycle; including precipitation, runoff, ground water flow, evaporation and transpiration, stream flow. Hydrograph analysis; flood routing; frequency and duration; reservoir design; computer simulation model of a watershed.

(546) **CE 5146. Engineering Hydraulics. (3) (3G)** Admission by consent of instructor. Problems of fluids as applied in civil engineering; open channel flow; dams and spillways; water power; river flow and backwater curves; pipe networks, fire flow, sewage collection, groundwater, computer applications including a hydraulic water model simulation.

(641) **CE 6141. Stream Pollution Analysis. (3G)** Admission by consent of instructor. Mathematical modeling of water quality in receiving streams including: generation of point and nonpoint sources of pollution; formulation of transport equations for contaminants in stream and estuarine water; and prediction of the fate, persistance and transformation of chemical pollutants in aquatic ecosystems. Computer model simulation and case studies.

TRANSPORTATION AND GEOTECHNICAL ENGINEERING

(352) **CE 3152. Transportation Laboratory I. (2)** Corequisite: CE 3161. Design of transportation systems including highways, airports, pipelines and mass transit; route layout, geometric design and earthwork calculations; computer-aided system simulation and evaluation. One hour of lecture and three laboratory hours per week.

(261) **CE 3160. Surveying. (3)** Prerequisite: CE 2152. Elements of plane surveying including taping, transit, level, stadia, plane table, topographic surveying and mapping, care and adjustment of instruments; error adjustments; area and earthwork computations; introduction to photogrammetry; computer techniques. Periods of laboratory, lecture and field work will be scheduled.

(361) **CE 3161. Transportation Engineering I. (3)** Prerequisite: MAT 2141 and corequisite: CE 2152. Analysis of transportation facilities; planning, location and economic considerations, with special emphasis on land transportation.

(452) **CE 3252. Geotechnical Laboratory I. (2)** Prerequisites or corequisites: EGS 3141 and CE 3268. Demonstrations and experiments verifying theoretical bases of geotechnical engineering; cohesionless and cohesive soils. One hour of lecture and three laboratory hours per week.

(468) **CE 3268. Geotechnical Engineering. (3)** Prerequisite: EGS 3141 and CE 2152. Theoretical bases of geotechnical engineering to include shear, stress and strain in soils and failure of soils; foundation, permeability; seepage and settlement; retaining structures, slope stability and earth dams; soil-structure interaction; foundations.

(462) **CE 4162. Urban Transportation Engineering. (3)(3G)** Prerequisite: CE 3161. Urban transportation considerations; travel characteristics of urban transportation systems; analysis of transportation-oriented studies; analytic methods of traffic generation, distribution, modal split and assignment; traffic flow theory.

(561) **CE 5161. Urban Traffic Engineering. (3)(3G)** Prerequisite: CE 3161 or consent of instructor. Analysis of basic characteristics of drivers, vehicles and roadway that affect the performance of road systems. Stream flow elements, volume, density, speed. Techniques of traffic engineering measurements, investigations and data analysis, capacity analysis. Intersections, accidents, parking.

(661) **CE 6161. Urban Traffic Control and Operation. (3G)** Prerequisite: CE 5161 or consent of instructor. Traffic control theory and application; traffic regulation, laws and ordinances; speed control, intersection control, flow control and parking control; design and application of control devices, investigation, evaluation techniques; statistical analysis; administration.

(681) **CE 6181. Traffic Flow Theory. (3G)** Prerequisite: CE 5161 or consent of instructor. Logical foundations and mathematical representation of traffic flow; interrelation between microscopic and macroscopic equations of motion for highway traffic; stochastic properties of traffic at low and moderate densities. Car following theories of traffic flow at high densities. Applications of queueing theory to transportation.

(682) **CE 6182. Transportation Systems Analysis. (3G)** Prerequisite: CE 5161 or consent of instructor. Issues, concepts and methods of transportation systems engineering and planning. Decision making in transportation management. The application of analytical methods to the development and evaluaton of transport systems.

URBAN ENGINEERING, DESIGN ENGINEERING, AND SPECIAL TOPICS

(102) **CE 1102. Computer Applications. (2)** Introduction to computer programming through the study of FORTRAN IV, including the use of subprograms. Civil engineering applications will be stressed.

(201) **CE 2101. Engineering Drawing. (2)** Prerequisite: CE 1102. An introduction to engineering drawing. Topics include isometric, oblique and perspective drawing; orthographic projection; section views and building construction documents. One hour of lecture and three laboratory hours per week.

(252) **CE 2152. Measurements Laboratory. (2)** Prerequisite: CE 2101 and MAT 2122. An introduction to laboratory and field data collection techniques. Instruction in data analysis, data presentation and report writing. Elements of plane surveying, basic theory and fundamental measurements. One hour of lecture and three laboratory hours per week.

(490) **CE 3090. Special Topics in CE. (1-4)** This course will be devoted to specific new areas which are emerging in the various fields of urban and environmental engineering. The course will build upon and synthesize the knowledge the students have gained from the engineering science, mathematics and physical science stems of the core curriculum. May be repeated for credit.

(412) **CE 3212. Computer Applications in Urban and Environmental Engineering. (3)** Senior standing in engineering. The application of the digital computer to various types of urban and environmental engineering problems. Examinations in depth of selected urban and environmental engineering problems.

(432) **CE 3232. Urban Engineering. (3)** Admission by consent of instructor. An examination of those societal problems of metropolitan regions most amenable to engineering solutions. Current urban literature will be reviewed in seminar, and selected topics amenable to engineering analysis will be studied. Written reports will be presented.

(41) **CE 3271. UEE Systems and Design I. (3)** Prerequisite: senior standing, consent of instructor and MAT 2171. Introduction to systems engineering techniques as applied to urban and environmental engineering problems. The application of analytical methods to the development and evaluation of engineering systems. Course stresses methodological considerations and engineering projects which are carried out by small groups of students.

(472) **CE 3272. UEE Systems and Design II. (3)** Prerequisite: CE 3271. Continuation of CE 3271 systems techniques. Utilization of students' previous course work and principles of CE 3271 to creatively investigate and produce alternative solutions for a comprehensive engineering project. Efforts will result in written and verbal class presentations.

(481) **CE 3281. Professional Develpoment. (2)** Prerequisite: senior standing in CE. A series of one-hour lectures y faculty and invited speakers. Instruction in the basic concepts of professionalism and the nature and purpose of engineering ethics. Offered on a pass/fail basis.

(492) **CE 3890. Individualized Study. (Variable credit 1-3 hours. May be repeated for credit.** Prerequisite: consent of the Department. Supervised individual study within an area of a student's particular interest which is beyond the scope of existing courses.

(491) **CE 3990. Undergraduate Research in CE. (Variable credit 1-4 hours. May be repeated for credit.)** Prerequisite: consent of the Department. This course involves the independent study of a theoretical and/or experimental problem in a specialized area of CE.

(590) **CE 5090. Special Topics in CE. (1-4) (1-4G)** Study of specific new areas emerging in the various fields of civil engineering. May be repeated for credit.

(565) **CE 5165. Urban Systems Engineering. (3) (3G)** Prerequisite: CE 3272 or consent of instructor. Survey of economic, political, sociological and technological factors affecting modern growth; a planning process and its role in solving selected urban problems with emphasis on engineering contributions.

(592) **CE 5892. Individualized Study and Projects. (1-6) (1-6G)** Prerequisite: consent of the Department. Individual investigation and exposition of results. May be repeated for credit.

CE 5991. Graduate Research in CE. (104) (1-4G) Prerequisite: consent of the Department. Independent study of a theoretical and/or experimental problem in a specialized area of CE. May be repeated for credit.

(690) **CE 6090. Special Topics in CE. (1-6G)** Directed study of current topics of special interest. May be repeated for credit.

(671) **CE 6171. Air Quality Control. (3G)** Prerequisite: consent of instructor. Study of various types of air pollutants, their sources, anture and effects. Examination of air quality criteria, standards and monitoring. Analysis of feasibility, applicability and efficienty of diverse systems of control. Evaluation of goal and research needs in the future.

(692) **CE 6892. Individualized Study and Projects. (1-6G)** Individual investigation and exposition of results. May be repeated for credit.

(691) **CE 6991. Graduate Thesis Research. (1-6G)** Individual investigation culminating in the preparation and presentation of a thesis. May be repeated for credit.

Department of Electrical Engineering

Chairperson: Professor Wayne
Distinguished Professor Emeritus: Barnette
Distinguished Professor: Nicollian
Associate Professors: Coleman, Kakad, Lukic, Mescua, Smith
Assistant Professors: Cathey, Makki, Tranjan
Lecturer: Jenkins

The Electrical Engineering Department provides instruction and research in areas of electrical and computer engineering such as electronics, microelectronics, electric power systems, system and control theory, digital systems, and signal processing and communications.

A six-semester sequence of courses emphasizing circuits and systems forms the core of the curriculum. These courses are designed to develop the concepts and analysis techniques fundamental to the various areas of specializations. Emphasis is placed on the utilization of the computer in all courses throughout the curriculum.

The laboratory courses are designed to serve three purposes: (1) to teach the basic techniques of instrumentation; (2) to develop skills in communications; and (3) to relate the analytical methods developed in the classroom to the performance of real physical systems.

The curriculum requirements are flexible enough so that a student may synthesize a program of study to achieve his or her particular objectives and his or her desired degree of specialization. This is done through the use of the technical electives, with the guidance and approval fo the student's academic adviser and approval of the Department chairperson. All students must have a Career Goals and Educational Planning form approved by their academic adviser and Department chairperson prior to scheduling a technical elective. If further specialization in a particular area is desired, the student may be encouraged to seek an advanced degree.

The technical electives must contain at least six hours of course work dealing with engineering science, analysis, synthesis or design with the remaining six hours being in engineering, science, mathematics, business or communications.

Graduate studies in electronics, microelectronics, computer systems and power systems are offered by the Department.

The program in Electrical Engineering is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology, a specialized accrediting body recognized by the Council on Postsecondary Accreditation.

CURRICULUM OUTLINE
FOR THE
BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING

Freshman Year

EGR 1100 Intro. to Engineering 1	EE 1102 Computer Language I & Graphics 2
MAT 1141 Diff. & Integral Calculus I 4	MAT 2241 Diff. & Integral Calculus II ... 4
CHE 1101 Prin. of Chemistry I 3	PHY 2221 Dynamics 3
CHE 1101L Prin. of Chemistry Lab I 1	PHY 2221L Experimental Physics I 1
ENG 1101 English Composition 3	HUM/SS 3
HUM/SS 3	HUM/SS 3
15	16

Sophomore Year

EE 2111 Network Theory I 3	EE 2112 Network Theory II 3
EE 2101 Computer Language II 2	EE 2152 Laboratory I 2
EE 2181 Switch. Theory & Logic Design I 3	EGS 2143 Statics & Strength of Materials 3
PHY 2231 Electricity & Magnetism 3	PHY 2241 Intro. to Modern Physics 3
MAT 2171 Differential Equations 3	MAT 2141 Diff. & Integral Calculus III 3
ECO 2101 or 2101 Micro or Macro Economics 3	HUM/SS 3
17	17

Junior Year

EE 3111 System Analysis I 3	EE 3112 System Analysis II 3
EE 3151 Laboratory II 2	EE 3152 Laboratory III 2
EE 3101 Comp. Utilization in Egr. 3	EE 3142 Electromagnetic Devices 3
EE 3131 Fund. of Electronics & Semicond. 3	EE 3132 Electronics 3
EE 3121 Intro. to Electromagnetic Fields 3	EE 3122 Electromagnetic Waves 3
HUM/SS 3	Math Elective 3
EE 3199 Professional Development 0	EE 3199 Professional Development 0
17	17

Senior Year

EE 4111 Control Systems I 3	EE 4112 Control Systems II 3
EE 3251 Senior Design I 2	EE 3252 Senior Design II 3
EE 4xxx 3	ME 3111 Thermodynamics I 3
Technical Elective 3	Technical Elective 3
Technical Elective 3	Technical Elective 3
Science Elective 3	EE 3199 Professional Development 1
EE 3199 Professional Development 0	
17	16

ELECTRICAL ENGINEERING (EE)

Courses for Undergraduates

(102) **EE 1102. Computer Language and Graphics. (2)** Corequisite or prequisite: MAT 1141. Introduction to the concepts and techniques of engineering graphics using computational methods and computer graphics. Introductory computer programming using electrical engineering applications.

(201) **EE 2101. Computer Language II. (2)** Prerequisite: EE 1102 with a grade of C or better. Introduction to a second high level language, algorithms, flowcharting, use of engineering software packages, engineering subroutines and program documentation.

(211) **EE 2111. Network Theory I. (3)** Corequisite: EE 2101. Prerequisite or corequisite: PHY 2231 and MAT 2171. Introduction to Kirchoff's and terminal equations. Circuit analysis techniques and network theorems. Singularity functions and signals. Transient and natural response of first and second order networks. State variable analysis.

(212) **EE 2112. Network Theory II. (3)** Prerequisite: EE 2111 with a grade of C or better and MAT 2171. Continuation of EE 2111. Introduction of sinusoidal steady state. Time frequency domain analysis. Power and energy. Two port networks. Fourier series. Introduction to Fourier and Laplace transforms.

(258) **EE 2151. Basic Electrical Engineering Laboratory. (1)** Prerequisite or corequisite: EE 2163. Principles and operation of electrical circuits, basic electronic devices and energy conversion devices. Not open to Electrical Engineering majors. Three laboratory hours a week.

(254) **EE 2152. Laboratory I. (2)** Prerequisite: ENG 1101; prerequisite or corequisite: EE 2112. The first in a series of laboratory oriented courses designed to develop an understanding of the principles and theory of parameter measurement and instrumentation. Instruction in the use of laboratory equipment and development and application of experimental techniques. One hour of lecture and three laboratory hours per week.

(261) **EE 2161. Basic Electrical Engineering I. (3)** Corequisite or prerequisite: PHY 2231. Fundamental concepts and methods of analysis used in electrical engineering. Topics include: terminal characteristics of devices, analysis of D.C. and A.C. circuits, elementary operation of electronic devices. Not open to Electrical Engineering majors.

(262) **EE 2162. Basic Electrical Engineering II. (3)** Prerequisite: EE 2161 with a grade of C or better. Continuation of EE 2161 covering electronics, magnetic fields, electromagnetic and electromechanical devices. Not open to Electrical Engineering majors.

(268) **EE 2163. Electrical Engineering Survey. (3)** Prerequisites: MAT 1142; Corequisite: PHY 2231. Fundamental concepts and methods of analysis used in electrical engineering. Topics include: terminal characteristics of devices, analysis of D.C. and A.C. circuits, elementary operation of electronic devices and electromechanical energy conversion devices. Not open to Electrical Engineering majors.

(282) **EE 2181. Logic System Design I. (3)** Prerequisite or Corequisite: EE 1102 or permission of Department. Introduction to Boolean algebra; mixed logic; design of combinational circuits; introduction to sequential systems; MSI building blocks; includes laboratory design projects.

(284) **EE 2182. Logic System Design II. (3)** Prerequisite: EE 2181 with a grade of C or better or permission of the Department. Continuation of EE 2181. Multi-input and output controllers using top down design; logic design using MSI and LSI. Bit-slice controllers; including laboratory design project and techniques.

(490) **EE 3090. Special Topics in Electrical Engineering. (1-4)** Prerequisite: consent of the Department. The course builds upon and synthesizes knowledge from the engineering science, mathematics and physical sciences stem of the core curriculum. The specific topics teach engineering analysis, synthesis and design, while simultaneously affording an opportunity for the students to investigate an area of specialization. May be repeated for credit.

(381) **EE 3101. Computer Utilization in Electrical Engineering. (3)** Prerequisite: EE 2112 or EE 2152 with a grade of C or better or consent of the Department. The application of the digital computer to engineering analysis and design problems. Computer-aided analysis and design. Introduction to language and applications.

(311) **EE 3111. System Analysis I. (3)** Prerequisite: EE 2112 with a grade of C or better. Analysis of networks under transient and steady state conditions. Topological and matrix formulation. Topological and matrix formulation techniques used in network analysis. Transient and steady state analysis. State variable techniques. Transform methods. Sinusoidal steady state. Network theorems.

(312) **EE 3112. System Analysis II. (3)** Prerequisite: EE 3111 with a grade of C or better. A continuation of EE 3111 emphasizing system response characteristics in the frequency domain. Introduction to techniques of analysis of continuous and discrete systems.

(321) **EE 3121. Introduction to Electromagnetic Fields. (3)** Prerequisite: EE 2112. A study of electric and magnetic fields using the vector formulation. Vector analysis. Electrostatics; potential functions, dielectrics, capacitance, energy and forces associated with electric fields, solution of Laplace's and Poisson's equations. Magnetostatics: vector potential functions, Lorentz forces, hysteresis, magnetic polarization and induction, and energy. Gauss's, Ampere's, Faraday's laws, etc., leading to the Maxwell's equations.

(322) **EE 3122. Electromagnetic Waves. (3)** Prerequisite: EE 3121 with a grade of C or better. A study of Maxwell's equations; transmission line theory, plane waves in media, propagation of electromagnetic waves in various media. The phenomena of reflection and refraction at interfaces of two dissimilar materials. Guided electromagnetic waves in coaxial cables and waveguides.

(332) **EE 3131. Fundamentals of Electronics and Semiconductors. (3)** Prerequisite: EE 2112 with a grade of C or better. Study of the fundamental concepts of the theory and applications of semiconductor devices. Diode characteristics and applications, including clipping and rectifier circuits. Transistor fundamentals. D.C. biasing and stabilization. Small-signal analysis. Field-effect transistors. Operational amplifier fundamentals.

(334) **EE 3132. Electronics. (3)** Prerequisite: EE 3131 with a grade of C or better. Low and high-frequency analysis of transistor amplifiers. Multistage and feedback amplifier design. Stability and oscillation. Operational amplifier design and applications.

(436) **EE 3134. Industrial Electronics. (3)** Prerequisite: EE 3132 with a grade of C or better. High power solid state circuits. Topics include choppers, phase controlled rectifiers, triggering devices, inverters and dual converters, limiting and regulating circuits.

(342) **EE 3142. Electromagnetic Devices. (3)** Prerequisite: EE 3121 with a grade of C or better. Principles of operation and basic design features of electromechanical energy converters. The role of the magnetic field in transformers and electrical machines. Generation of induced voltages. Electromagnetic torque development. Speed control. Circuit models and machine performance.

(353) **EE 3151. Laboratory I. (2)** Prerequisite: EE 2152 with a grade of C or better. Prerequisite or corequisite: EE 3111. Generating, measuring and recording devices and evaluation of their performance. Use of instrumentation to monitor operating systems and to determine the characteristics and behavior of physical devices. One hour of lecture and three laboratory hours per week.

(354) **EE 3152. Laboratory III. (2)** Prerequisite: EE 3151 with a grade of C or better. Prerequisite or corequisite: EE 3112. Continuation of EE 3151 emphasizing the experimental analysis and design problems. Modeling and model evaluation. One hour of lecture and three laboratory hours per week.

(384) **EE 3181. Computer Organization and Microprogramming. (3)** Prerequisite: EE 2182 with a grade of C or better or permission of Department. Microcomputer development and architecture, microprogramming, chip-slice microprocessors.

(385) **EE 3182. Digital Logic Design. (3)** Prerequisite: EE 2181 and 3131 with a grade of C or better. Bipolar and field-effect transistors, switching characteristics, device models, logic families. Memory devices, one-shots, Schmitt triggers, logic gates, drivers. Use of logic analyzers.

(387) **EE 3183. Programming Languages. (3)** Prerequisite: CSC 2161. Topics include structure of simple statements and algorithmic languages, list processing, manipulation and text editing, linear-time parsers/interpreters/compilers. Emphasis on application of these concepts to engineering systems including programmable logic controllers and mini/micro computers as process controllers.

(499) **EE 3199. Professional Development. (0)** The purpose of this course is to broaden the student's perception of engineering as a career through participation in various activities related to the engineering profession. Activities consist of attendance at professional society meetings, active participation in student organizations, attendance at visiting lectures and seminars, etc. Course requirements are spread over a two-year period. Students will write two comprehensive reports, each of which concerns one of the above topics. Students must schedule this course during each of the three semesters prior to their last for zero credit and for one credit on a pass/no credit basis during their final semester. Satisfactory completion of this course is required for graduation for all EE majors.

(453) **EE 3251. Senior Design I. (2)** Prerequisite: EE 3152 with a grade of C or better. Corequisite: senior standing in Engineering. A project-oriented course stressing the planning and design of experiments to support the student's project. Formation of the design problem and specifications.

(454) **EE 3252. Senior Design II. (3)** Prerequisite: EE 3251 with a grade of C or better. A continuation of EE 3251 consisting of project development, analysis culminating in a written and oral presentation.

(492) **EE 3890. Individualized Study (1-3)** Prerequisite: consent of the Department. Supervised individual study within an area of a student's particular interest which is beyond the scope of existing courses. May be repeated for credit.

(491) **EE 3990. Undergraduate Research. (1-4)** Prerequisite: consent of the Department. This course involves the independent study of theoretical and/or experimental problems in the specialized area of engineering analysis and design. The student can pursue some particular area or problem to a depth much greater than can be undertaken within the scope of existing courses. May be repeated for credit.

Courses for Advanced Undergraduates and Graduate Students

(411) **EE 4111. Control Systems Theory I. (3) (3G)** Prerequisite: EE 3112 with a grade of C or better. Transfer functions, block diagrams and signal flow graphs. Feedback control system characteristics. The performance and stability of feedback systems using root locus and frequency response methods. Time domain analysis of control systems. The design and compensation of control systems.

(412) **EE 4112. Control Systems Theory II. (3) (3G)** Prerequisite: EE 4111 with a grade of C or better. State space techniques and useful state space methods. System stability. Controlability and observability of linear systems. The formulation of the state equations for discrete-time systems and the analysis of these systems by matrices. Analysis of nonlinear systems. Optimal control systems studies.

(313) **EE 4113. Modeling and Analysis of Dynamic Systems. (3) (3G)** Prerequisite: EE 3112 or permission of the department. Models and dynamical properties of mechanical, thermal, and fluid systems, utilizing by analogy the properties of electrical circuit theory. Emphasis on the formulation of circuit models and the development of terminal equations of system components. Dynamic response to step, pulse, and sinusoidal driving functions using Laplace transforms. Sinusoidal steady-state and frequency response of systems.

(314) **EE 4114. Topological Aspects of Circuit Theory. (3) (3G)** Prerequisite: EE 3112 or permission of the department. Topological analysis of passive and active networks. Application of topology to switching network. Flow graph techniques in systems analysis. Topological synthesis and other applications.

(422) **EE 4121. Antennas. (3) (3G)** Prerequisite or corequisite: EE 3122 with a grade of C or better or permission of the department. Radiation into free space, the point source, thin linear antenna, arrays of linear elements, aperture antennas, impedance, methods of feeding, matching and termination. Antenna systems.

(426) **EE 4122. Acoustics. (3) (3G)** Prerequisite or corequisite: EE 3122 or PHY 3231. Vibrations and simple vibrating systems; radiating systems; plane waves of sound; dynamic analogies, microphones and other acoustic transducers; acoustic measurements.

(435) **EE 4131. Linear Integrated Electronics. (3) (3G)** Prerequisite: EE 3132 with a grade of C or better. Application of integrated circuit devices to the generation, control and processing of analog signals. Power supply regulators, analog switches, waveform generators, and active filters. Modulation and demodulation.

(411) **EE 4141. Power System Analysis I. (3) (3G)** Prerequisite: EE 3142 with a grade of C or better. Representation of power system components for analysis studies. Transmission line parameters. Network equations. Load flow analysis and numerical methods.

(442) **EE 4142. Power System Analysis II. (3) (3G)** Prerequisite: EE 4141 with a grade of C or better. Economic operation of power systems. Short circuit studies. Symmetrical components. Transient stability analysis.

(443) **EE 4143. Electrical Machinery. (3) (3G)** Prerequisite: EE 3142 with a grade of C or better. Advanced theory of transformers and rotating. Machines. Harmonic and saturation effects on machine performance. Unbalanced operation and transient conditions.

(486) **EE 4182. Digital System Testing. (3) (3G)** Prerequisite: EE 2181 with a grade of C or better or permission of Department. System testing; Boolean difference; D-algorithm; checking experiments; redundancy, computer aided digital test systems.

THE 5000-LEVEL GRADUATE COURSES ARE FIRST-YEAR GRADUATE COURSES ALTHOUGH SOME ADVANCED SENIORS MAY ENROLL WITH PERMISSION OF THE DEPARTMENT OFFERING THE COURSE.

(590) **EE 5090. Special Topics. (1-6) (1-6G)** Directed study of current topics of special interest. May be repeated for credit.

561) **EE 5101. Advanced Computer Utilization. (3) (3G)** Prerequisite: consent of the department. The use of computers in large scale engineering problems. Topics include flow diagrams, matrix analysis of systems, applications of iteration methods to non-linear problems, eigenvalue problems, optimization and handling of large engineering data base problems. Engineering applications will be emphasized.

(583) **EE 5102. Engineering Simulation. (3) (3G)** Prerequisite: EE 3101 or consent of the department. A wide range of simulation related topics will be introduced including the theory of simulation, characteristics of simulators, and trade-offs in simulations tudies. Continuous and discrete simulation with primary emphasis on application of simulation techniques to engineering problems. Simulation of actual problems based on students' interest and experience areas.

(585) **EE 5103. Applied Computer Graphics. (3) (3G)** Prerequisite: Permission of the department. Interactive graphics; raster, character, vector, graphics, display technologies; rotation, scaling, translating of graphics image; image processing/enhancement; feature extraction; 3-D graphics; hidden lines.

(541) **EE 5104. Computational Methods in Power Systems. (3) (3G)** Prerequisite: EE 4142 or permission of the department. Numerical techniques for analysis, operation and planning of power systems. Sparse matrix techniques applied to power flow algorithms. Economic operation of power systems. Optimum power flow.

(511) **EE 5111. Control Systems. (3) (3G)** Prerequisites: consent of the Department. Mathematical models and characteristics of control systems. Performance and stability of linear feedback systems. Root locus and frequency response techniques. Stability in frequency domain. Time domain analysis. Design and compensation of control systems. Credit will not be given for EE 5111 where credit has been given for EE 4111.

(513) **EE 5112. Nonlinear Analysis. (3) (3G)** Prerequisite: EE 3112. Solution of nonlinear problems using numerical and graphical methods, phase plane plots, analysis of singular points and analytical techniques. Forced oscillating systems. Stability of nonlinear systems. Use of analog and digital computer to study nonlinear problems.

(514) **EE 5113. Network Synthesis. (3) (3G)** Prerequisite: EE 4114 or equivalent. The positive real concept, properties and methods of testing. Realizability conditions on driving point functions. Methods of synthesis of one-ports. Physical realizability and properties of two-port networks. Transfer function synthesis. Approximation methods.

(534) **EE 5114. Device Characterization, Parameterization and Modeling. (3) (3G)** Prerequisite: EE 3132 and EGS 4134 or permission of the department. Advance device and circuit analysis; device and circuit simulation using SPICE, ECAP or equivalent. Parametric modeling of active devices. Device characterization and parameterization; temperature effects; thermal cycling. Analysis of device failure modes.

(533) **EE 5121. Communications Theory I. (3) (3G)** Prerequisite: EE 3112. Information transmission and modulation systems. Analysis of transmission through electric networks, analysis and comparison of modulation systems, analog and digital communication systems. Introduction to information theory, sampling theory and noise. Introduction to statistical communications theory.

(531) **EE 5131. Data Communications. (3) (3G)** Prerequisites: EE 2181 and 3131. Topics include asychronous communications, UARTS; 20 ma loop, CCITT, RS-232-C, and RS 422/3 standards; telephone switching systems, model control, asynchronous models; error detection, synchronous communication; protocols, bisync, SDLC; packet switching.

(532) **EE 5132. Integrated Circuit Electronics. (3) (3G)** Topics include electrical transducers and instrumentation amplifiers, active filters, signal conditioning and analog processing, data coversion, process control, electronic power supplies, reliability, noise and low-level signal processing.

(535) **EE 5133. VLSI Systems Design. (3) (3G)** Prerequisite: EE 3131 or permission of the department. Techniques for analysis and design of very large scale integrated circuits. Comparison with conventional techniques. Regularity and synthesis. A project oriented course relying heavily on computer-aided design.

(531) **EE 5135. Physical Electronics. (3) (3G)** Prerequisite: EE 3122 or PHY 3181 or permission of the department. Dynamics of charged particles; electron motion in electromagnetic fields; types of electron emission; beam focusing; longitudinal and transverse beam waves; microwave generation; plasma parameters.

(542) **EE 5141. Unsymmetrical Analysis of Power Systems. (3) (3G)** Prerequisite: EE 4142 or permission of the department. Application of symmetrical components to the calculation of overcurrents and overvoltages during unsymmetrical faults. Characterization of generators, transformer banks and transmisison lines for unsymmetrical analysis. Methods for grounding the system neutral.

(536) **EE 5181. Computer Arithmetic. (3) (3G)** Prerequisite: Permission of the department. Principles, architecture and design of fast two operand adders, multi-operand adders, standard multipliers and dividers. Cellular array multipliers and dividers. Floating point processes, BCD and excess three adders, multipliers and dividers.

(592) **EE 5892. Individualized Study. (1-6) (1-6G)** Individual investigation and exposition of results. May be repeated for credit.

Courses for Graduate Students Only

(623) **EE 6021. Advanced Topics in EM and Applications. (3G)** Prerequisite: Permission of the department. Possible topics include: advanced boundary value problems; nonlinear magnetic materials; wave guides and resonant cavities; magnetohydrodynamics and plasmas; relativistic effects; charged particle dynamics; radiation.

(690) **EE 6090. Special Topics. (1-6G)** Directed study of current topics of special interest. May be repeated for credit.

(685) **EE 6101. Advanced Computer Graphics. (3G)** Prerequisite: EE 5103 and 5133 or permission of department. A project oriented course using and developing techniques of CAD/CAM graphics, hardware and software development. Advanced application of graphics in computer-aided systems design.

(661) **EE 6102. Optimization of Engineering Designs. (3G)** Prerequisite: EE 5101 or consent of department. The development of computationally feasible algorithms for solving optimization problems in engineering designs. Introduction to non-linear programming methods; study of constrained and unconstrained problems, linear programming problems and other related topics.

(611) **EE 6111. Systems Theory. (3G)** Prerequisite: EE 4112 or consent of department. State space concepts and solutions. Introduction to theory of deterministic linear systems. Application of matrix methods and vector difference equations to lumped parameter electrical mechanical and fluid systems, and discrete time systems. Frequency domain techniques in signal and systems analysis. Computer simulation of system dynamics.

(619) **EE 6112. Digital Control Systems. (3G)** Prerequisite: EE 6111 and 4181 or consent of the department. Time-domain and Z-domain analysis of linear discrete systems, open and closed loop sampled data systems, engineering characteristics of computer control systems, simulation of system dynamics.

(662) **EE 6113. Digital Signal Processing. (3G)** Prerequisite: EE 4112 or consent of the department. Topics include complex variables, phasors, digital signals and systems. Fourier transform of digital signals, digital filters, Kepstrum FFT, random processes, spectral estimation, deconvolution.

(631) **EE 6131. Hybrid Microelectronics. (3G)** Prerequisite: EE 5132 or permission of the department. A project oriented course involving design, bonding, interconnect and testing of a multidie hybrid microelectronics circuit. Emphasis placed upon use of I.C.'s of various technologies in these designs to optimize performance.

(643) **EE 6141. Power System Relaying. (3G)** Prerequisite: EE 5141 or permission of the department. Function and principles of protective relaying instrument transformers. Directional, distance and differential relays. Protection of generators, transformers, and transmission lines. Ground fault protection. Computer relaying, algorithms for protective relaying.

(644) **EE 6142. Voltage Transients and Surge Protection. (3G)** Prerequisite: EE 5141 or permission of the department. Overvoltages due to lightning and switching surges. Traveling waves on transmission lines. Surge arrestors, insulation coordination. Surge protection of transmission lines, substations and rotating machine. Shielding and grounding.

(645) **EE 6143. Power System Control. (3G)** Prerequisite: EE 4142 and 4111 or permission of the department. Computer functions for automatic control of power systems. Automatic generation control, regulation of frequency and tie-line power interchanges. Automatic voltage regulation, excitation system model. Power system dynamics. Computer control centers.

(641) **EE 6144. Operation of Integrated Power Systems. (3G)** Prerequisite: EE 4142 or consent of department. System modeling and matrix analysis of power networks. Application of computers to the solution of a variety of problems related to operation, planning and design of electric power systems.

(642) **EE 6145. Control of Integrated Power Systems. (3G)** Prerequisite: EE 4142 or permission of department. Analysis and simulation of power system components. Study of transient and control problems associated with interconnected power systems and techniques of analysis. Practical methods applied to analysis of large systems.

(652) **EE 6151. Advanced Microelectronics Projects. (3G)** Prerequisite: EE 5133. A project oriented course intended for the advanced microelectronics student who wishes to pursue the testing and simulation at various levels (component, gate, cell and system), as well as the design of a significant VLSI implementation.

(681) **EE 6181. Switching and Automata Theory I. (3G)** Prerequisite: consent of department. Topics include sets, relations, lattices, Boolean algebras; functional decomposition and symmetric functions; threshold logic; multiple-value logic; fault detection and fault tolerant design; finite state machines, incompletely specified machines, minimization; state identification and fault-detection experiments; finite state recognizers.

(682) **EE 6182. Switching and Automata Theory II. (3G)** Prerequisite: EE 6181 or permission of the department. Advanced topics in the area of switching and automata theory. Topics typically chosen to accommodate student and instructor interest; may include tesselation automata, pushdown/linear-bounded/and turing automata (and the formal languages each accepts), computability and testability, digital system architecture, binary and non-binary switching theory, and related areas.

(683) **EE 6183. Multiprocessor Systems Design. (3G)** Prerequisites: EE 3184 and 5131. Topics include applications of multiprocessors to digital systems design; hardware/software trade-off considerations; master/slave, multiple/master and loosely coupled systems; data handling and synchronization problems, networking.

(680) **EE 6184. Computer System Engineering. (3G)** Prerequisite: consent of the department. Topics include data formats, register transfer operations, computer organization, microprogram control and ALU design. Arithmetic algorithms, I/o organization and memory organization are also covered. Specific emphasis is placed throughout on tradeoffs between hardware and software.

(692) **EE 6890. Individualized Study and Projects. (6G)** Individual investigation and exposition of results. May be repeated for credit.

(691) **EE 6991. Graduate Thesis Research. (6G)** Individual investigation culminating in the preparation and presentation of a thesis. May be repeated for credit.

Department of Mechanical Engineering and Engineering Science

Chairperson: Professor DeHoff
Distinguished Professor: Nicollian
Professors: Kim, Mohanty, Snyder
Visiting Professor: Sharma
Associate Professors: Crippen, Dwivedi
Assistant Professors: Aly, Estrada
Lecturer: Cope

Mechanical engineering is possibly the broadest of the engineering disciplines. Mechanical engineers are involved in almost all aspects of the technological problems facing today's society. Among the major concerns of the mechanical engineer are problems related to conversion, utilization and conservation of our limited energy resources. Additional important areas for the mechanical engineer include the design and analysis of machines, structures and manufacturing processes related to the industrial output of the nation. Increasingly this design and analysis is computer based. Mechanical engineers develop and utilize the techniques of computer-aided design (CAD/CAM) and incorporate the use of robots in manufacturing processes.

A sound understnading of the engineering sciences is fundamental to the education of engineers in every discipline. The engineering sciences are generally identified as those areas of engineering which emphasize the application of the fundamental principles of the physical sciences, primarily physics and chemistry, to engineering problems. Some classical and emerging engineering areas recognized to fall within this field include thermodynamics, fluid mechanics, engineering mechanics, engineering materials, nuclear and chemical sciences, microelectronics theory and fabrication and the solid state sciences.

Using the flexibility provided by the technical electives, and with engineering career counseling, a student can develop a variety of educational programs which would provide the background for professional engineering licensing and practice in any of the areas included within mechanical engineering and/or the engineering sciences. The student can also prepare for graduate study in mechanical engineering, materials science or any of the recognized areas covered by the engineering sciences. Individualized study programs in one of the interdisciplinary fields involving the merger of engineering and the various science areas, such as bioengineering, microelectronics or chemical engineering sciences, can be developed.

The program in Mechanical Engineering is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology, a specialized accrediting body recognized by the Council on Postsecondary Accreditation.

CURRICULUM OUTLINE
FOR THE
BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING

Freshman Year

EGR 1100	1	ME 1102	3
CHE 1101	3	PHY 2221	3
CHE 1101L	1	PHY 2221L	1
MAT 1141	4	MAT 1142	4
ENG 1101	3	HUM/SS	3
HUM/SS	3	Science Elective (a)	3
	15		17

Sophomore Year

ME 2101	3	EE 2162	3
EGS 2141	3	EGS 2142	3
EE 2161	3	MAT 2171	3
MAT 2141	3	ME 2154	2
PHY 2231	3	Communications Elective (b)	3
PHY 2231L	1	PHY 2241	3
	16		17

Junior Year

ME 3111	3	ME 3112	3
ME 3122	3	ME 3123	3
ME 3153	2	ME 3154	2
EGS 3141	3	ME 3114	3
ME 3161	3	Technical Elective (c)	3
ECO 2101	3	HUM/SS	3
	17		17

Senior Year

ME 4121	3	ME or EGS 4xx(e)	3
ME 3253	2	ME 3299	1
ME 4111	3	ME 3254	3
Technical elective (c)	3	Technical Elective (c)	3
MAT elective (d)	3	Technical Elective (c)	3
HUM/SS	3	HUM/SS	3
	17		16

(a) Three credit hours of an approved course from the physical, life or earth sciences complementing the student's overall educational plan to satisfy the college degree requirement.

(b) May be selected from ENG 214, BUS 360 (requires junior standing) or any other communications course approved by the Department.

(c) Technical Electives:

The student can use this elective block to (1) obtain some depth within the broad field of engineering science by choosing additional advanced courses from the various engineering sciences; (2) obtain significant depth within a particular area of engineering science, or mechanical engineering through the use of available EGS, ME, science, mathematics and other engineering courses; (3) obtain a specialization in some other engineering or technical department; (4) prepare for graduate work in engineering, one of its specialized fields or some other engineering areas.

The technical electives must contain at least six hours of course work dealing with engineering science, analysis, synthesis or design with the remaining six hours being in engineering, science, mathematics, business or architecture.

(d) May be selected from MAT 2122, 2164 or a 3000-level mathematics course approved by the Department.

(e) Senior level ME or EGS course selected to complement the student's overall educational objectives.

ENGINEERING SCIENCE (EGS)

(241) **EGS 2141. Engineering Mechanics I. (3)** Prerequisite: PHY 2221 and corequisite: MAT 1142. The first course of a two-semester sequence introducing the principles of particle and rigid body mechanics with engineering applications. Force systems and resultants. The equilibrium of particles and rigid bodies. Friction. Properties of areas and volumes. The inertia tensor.

(242) **EGS 2142. Engineering Mechanics II. (3)** Prerequisite: EGS 2141 and corequisite: MAT 1142. The kinematics and kinetics of particles. Work-energy and impulse-momentum principles and conservation laws. Introduction to the dynamics of systems of particles and of rigid bodies. Energy and momentum methods.

(243) **EGS 2143. Statics and Strength of Materials. (3)** Prerequisite: PHY 2221; corequisite: MAT 1142. Force systems, resultants and equilibrium of particles and rigid bodies. Introduction to the engineering theory of deformable solids with applications.

(490) **EGS 3090. Special Topics in Engineering Science, Mechanics and Materials. (1-4)** Prerequisite: consent of the department. The course builds upon and synthesizes knowledge gained from the engineering science, mathematics and physical science stem of the core curriculum. Specific topics teach engineering analysis, synthesis and design and provide an opportunity for students to investigate an area of specialization. May be repeated for credit.

(331) **EGS 3131. Introduction To Electronic Materials. (3)** Prerequisite: PHY 2231. Electronic materials and devices with examples from crystalline and amorphous semiconductors, junction and MOS devices, thermoelectrics, lasers and superconductors. Introduction to the quantum mechanics of electrons in solids, electron-atom interactions and energy band model, providing a basis for rationalizing a wide variety of electronic properties.

(341) **EGS 3141. Introduction To Solid Mechanics. (3)** Prerequisites: EGS 2141 and MAT 2141. Engineering theory of defomable solids and applications. Stress and deformation resulting from axial, torsion, and bending loads. Shear and moment diagrams, Mohr's circle for stress and strain, and buckling of columns. Elastic - plastic behavior.

(492) **EGS 3890. Individualized Study. (1-3)** Prerequisite: consent of the department. Supervised individual study with an area of particular interest to a student which is beyond the scope of the courses. May be repeated for credit.

(491) **EGS 3990. Undergraduate Research. (1-4)** Prerequisite: consent ot the department. Independent study of a theoretical and/or experimental problem in a specialized area of engineering science, mechanics and materials. Students pursue an area or problem in more depth than possible in other courses. Topics for investigation may originate from the student or the faculty member supervising the study. May be repeated for credit.

(461) **EGS 4131. Solid State Transformations. (3) (3G)** Prerequisite: ME 3161. Thermodynamics, morphology and kinetics of solid state transformations. Diffusion and absolute reaction rate theory; crystallographic nature of phase transformations; nucleation and growth processes; precipitation and oxidation reactions.

(434) **EGS 4134. Solid State Electronics. (3) (3G)** Prerequisite: EE 3121 or EGS 3131 or PHY 2241 or consent of instructor. Electron theories of solids. Quantum mechanical foundations. Free electron and band models. Electron transport processes in metallic and nonmetallic conduction; diffusion and drift phenomena. Theory of semiconductors.

(562) **EGS 4162. Materials Production and Process. (3) (3G)** Prerequisite: ME 3161 and consent of instructor. Applications of thermodynamics and chemistry to extractive process metallurgy. Fundamental principles of materials forming operations. Casting, mechanical working and joining methods.

(590) **EGS 5090. Special Topics. (1-6) (1-6G)** Directed study of current topics of special interest. May be repeated for credit.

(502) **EGS 5102. Introduction to Continua. (3) (3G)** Prerequisites: ME 3111, EE 3121, EGS 3141 and ME 3114 or consent of instructor. A unified treatment of those topics which are common to all continua. Stress, deformation and velocity fields, constitutive equations and field equations. Representative applications in solid, fluid and electromagnetic continua, including interaction problems.

(513) **EGS 5114. Energy Conversion II. (3) (3G)** Prerequisite: ME 3112 and 4111. Study of conversion of heat into power. Thermoelectric, magnetohydrodynamic engines, thermionic converters, solar and fuel cells.

(532) **EGS 5132. Quantum and Parametric Electronics. (3) (3G)** Prerequisites: EE 3122 or PHY 3131 or consent of instructor. Quantum mechanics; spin energy levels; elementary masers, optical resonance; traveling wave tubes; backward wave oscillators.

(564) **EGS 5164. Diffraction and Spectroscopic Studies of Matter. (3) (3G)** Prerequisite: senior or graduate standing and consent of instructor. Atomic arrangements in crystalline and non-crystalline forms of matter. Symmetry properties of crystals. Treatment of diffraction theory and experimental methods. X-ray diffraction and spectroscopic analysis of matter.

(592) **EGS 5892. Individualized Study and Projects. (1-6) (1-6G)** Individual investigation and exposition of results. May be repeated for credit.

(690) **EGS 6090. Special Topics. (1-6G)** Directed study of current topics of special interest. May be repeated for credit.

(615) **EGS 6101. Transport Processes. (3G)** Prerequisite: consent of instructor. Unified field theory approach to the fluid transport of momentum, energy, mass and electrical charge. Statistical theories of turbulence and molecular transport. Multiphase systems, chemically reacting flows, ionized fluids, separation processes.

(616) **EGS 6102. Separation Processes. (3G)** Prerequisite: consent of instructor. Theory of stagewise and continuous separation processes. Applications include distillation, extraction, absorption and thermal diffusion.

(617) **EGS 6103. Chemical Reaction Engineering. (3G)** Prerequisite: consent of instructor. Theory and design of batch and flow chemical reactors.

(618) **EGS 6104. Nuclear Reactor Theory. (3G)** Prerequisite: consent of instructor. Neutron transport theory applied to the engineering design of nuclear reactors. Generation, diffusion and slowing down of neutrons. Nuclear ballistics and collision phenomena. Reactor kinetics and thermodynamics. Homogenous and heterogenous reactors.

(666) **EGS 6166. Deformation and Fracture of Materials. (3G)** Prerequisite: consent of instructor. Macroscopic and microscopic aspects of elastic and plastic deformation and fracture; applications of dislocation theory to an interpretation and control of mechanical properties; temperature, strain rate and texture effects.

(691) **EGS 6892. Individualized Study and Projects. (1-6G)** Individual investigation and exposition of results. May be repeated for credit.

(692) **EGS 6991. Graduate Thesis Research. (1-6G)** Individual investigation culminating in the preparation and presentation of a thesis. May be repeated for credit.

MECHANICAL ENGINEERING (ME)

Courses for Undergraduates

(102) **ME 1102. Engineering Graphics and Introduction to Engineering Computation. (3)** Prerequisite or corequisite: MAT 1141. Concepts, techniques and tools to solve engineering problems, including computational methods, engineering graphics and introduction to computer usage.

(201) **ME 2101. Introduction to Computer Applications. (3)** Prerequisites: ME 1102 and MAT 1141. Computer programming with emphasis on FORTRAN, batch and terminal operations, applications of numerical techniques to the solution of engineering problems.

(253) **ME 2154. Laboratory Ia. (2)** Prerequisite: ENG 1101, EE 2161 and PHY 2231L. Use of laboratory equipment and application of the principles of experimentation and measurement. One hour of lecture and three laboratory hours per week.

(490) **ME 3090. Special Topics in Mechanical Engineering. (1-4)** Prerequisite: consent of the Department. The course will build upon and synthesize the knowledge the students have gained from the mechanical engineering core curriculum. The specific topics covered in each separate offering of the course will serve as the vehicle for teaching engineering analysis, synthesis and design, while simultaneously affording an opportunity for the students to point themselves toward an area of specialization. May be repeated for credit.

(311) **ME 3111. Thermodynamics I. (3)** Prerequisite: EGS 2142 or PHY 2221 and MAT 2171. First and second laws of thermodynamics. Work and heat carnot cycle. Ideal and real gases. Nonreactive mixture of gases. Availability and irreversibility.

(312) **ME 3112. Thermodynamics II. (3)** Prerequisite: ME 3111. General thermodynamic relations; equations of state and generalized charts. Combustion, dissociation and chemical equilibrium. Introduction to power cycles.

(342) **ME 3114. Introduction To Fluid Mechanics. (3)** Prerequisite: EGS 2142 and MAT 2141. Basic concepts of a fluid and the fundamentals of ideal and real fluid flow. Topics include fluid statics, conservation principles, Bernoulli's equation, fluid flow in pipes, and measurement devices.

(323) **ME 3122. Analysis and Synthesis of Mechanisms. (3)** Prerequisite: EGS 2142. Kinematic elements, mechanisms and machines. Analysis of the motion of linkages, cams, and gears. Kinematic design of cams, gears and gear-trains. Synthesis of plane linkages. Computer-aided design of kinematic systems.

(322) **ME 3123. Mechanical Systems Design. (3)** Prerequisite: ME 3122 and EGS 3141 or consent of the department. Mechanical design and dynamic analysis of machine elements and systems; linkages, bearings, gears, springs and other mechanical components used in machine systems.

(353) **ME 3153. Laboratory IIa. (2)** Prerequisite: ME 2154 and corequisites: ME 3111, EGS 3141 and ME 3161. Laboratory experiments and development of basic experimental techniques and instrumentation necessary for measurements in the areas of engineering science, mechanics and materials. One hour of lecture and three laboratory hours per week.

(354) **ME 3154. Laboratory IIIa. (2)** Prerequisite: ME 3153 and corequisite: ME 3142. Continuation of ME 3153. One hour of lecture and three laboratory hours per week.

(361) **ME 3161. Introduction to Engineering Materials. (3)** Prerequisites: CHE 1101 and MAT 1142. Classifications of engineering materials. Introduction to property structure relationships. Ideal and defect atomic structures of solids with examples from metals, ceramics and polymers. Cold working and annealing effects. Phase equilibria in alloys; introduction to diffusional processes and transformation kinetics.

(362) **ME 3162. Mechanical Behavior and Strengthening of Solids. (3)** Prerequisite: ME 3161; prerequisite or corequisite: EGS 3141. Mechanical properties of materials including elastic behavior, plastic flow, fracture, creep, fatigue, elevated temperature effects. Correlation of properties with atomic and microscopic structure. Dislocation theory and its application to mechanical behavior and strengthening mechanisms. Alloy hardening effects; effects of processing and heat treatments. Applications in Fe-C alloys.

(409) **ME 3210. Automotive Power Plants. (3)** Prerequisite: ME 3112. Energy analysis of internal and external combustion engines for vehicular propulsion. Thermodynamic principles for combustion efficient use of fuel combustion, different types of fule use, and pollutant control.

(453) **ME 3253. Senior Design I. (2)** Prerequisite: ME 3154. Corequisite: senior standing in Engineering. The first of a two-semester sequence leading to a major integrative experience which emphasizes the application of mathematics, basic science and engineering science to the practice of engineering.

(454) **ME 3254. Senior Design II. (3)** Prerequisite: ME 3253. A continuation of ME 3253 including project execution leading to an oral presentation and final written report.

(499) **ME 3299. Professional Development. (1)** An examination of various aspects of engineering as a profession. The course will be graded on a pass/no credit basis.

(492) **ME 3890. Individualized Study. (1-3)** Prerequisite: consent of the Department. Supervised individual study within an area of a student's particular interest which is beyond the scope of existing courses. May be repeated for credit.

(491) **ME 3990. Undergraduate Research. (1-4)** Prerequisite: consent of the Department. Independent study of a theoretical and/or experimental problem in a specialized area of mechanical engineering. The student can pursue some particular area or problem to a depth much greater than can be undertaken within the scope of existing courses. The topics of the investigation may originate from the student or from the faculty member who will supervise the study. May be repeated for credit.

Courses for Advanced Undergraduates and Graduate Students

(411) **ME 4111. Heat Transfer. (3) (3G)** Prerequisites: ME 3112 and 3142. Steady and unsteady state heat conduction, forced and natural heat convection principles, radiative heat transfer, heat exchangers.

(442) **ME 4112. Intermediate Fluid Mechanics. (3) (3G)** Prerequisites: ME 3111 and 3114. A continuation of ME 3114. Topics include boundary layers, flow over body surfaces, compressible flow, turbomachinery and propulsion devices.

(412) **ME 4113. Energy Conversion I. (3) (3G)** Prerequisites: ME 3112 and 3142 and corequisite: ME 4111. Application of principles of thermodynamics, fluid flow and heat transfer to internal combustion engines, compressors, turbines, heat exchangers, refrigeration and cryogenics.

(421) **ME 4121. Machine Analysis and Design I. (3) (3G)** Prerequisite: ME 3122. Technical application of the basic principles of mechanical science to the analysis of machines and mechanical systems. Methods of design of typical machine elements. Strength and deflection requirements.

(422) **ME 4122. Machine Analysis and Design II. (3)(3G)** Prerequisite: ME 4121. Synthesis of machines and mechanical systems. Analysis, creative design and selection of machines and machine elements.

(441) **ME 4141. Intermediate Solid Mechanics. (3) (3G)** Prerequisite: EGS 3141. More advanced treatment of the topics covered in EGS 3141. Included are failure theories, energy methods, plane stress—plain strain analysis, torsion of prismatic bars and curved beams.

(415) **ME 4143. Mechanical Vibrating Systems. (3) (3G)** Prerequisites: EGS 3141 and EGS 2142 or permission of the department. Free and forced vibrations of systems with multi-degrees of freedom. Transient vibrations, analog simulation, non-linear vibrations and the vibration of continuous systems.

(444) **ME 4144. Intermediate Dynamics. (3) (3G)** Prerequisite: EGS 2142 and MAT 2171. Further studies in the dynamics of particles and rigid bodies, with engineering applications. Introduction to Lagrange's equations of motion. Multi-degree-of-freedom vibrations.

THE 5000-LEVEL GRADUATE COURSES ARE FIRST-YEAR GRADUATE COURSES ALTHOUGH SOME ADVANCED SENIORS MAY ENROLL WITH PERMISSION OF THE DEPARTMENT OFFERING THE COURSE.

(590) **ME 5090. Special Topics. (1-6) (1-6G)** Directed study of current topics of special interest. May be repeated for credit.

(538) **ME 5108. Finite Element Analysis and Applications. (3) (3G)** Prerequisite: consent of instructor. An introduction to the finite element method and its application to engineering problems. Application of the displacement methods to plane stress, plane strain, plate bending and axisymmetrical bodies. Topics include but are not limited to: dynamics, heat transfer, fluid mechanics, structural mechanics, and electric fields. (Dual listed with CE 5108.)

(514) **ME 5113. Dynamics and Thermodynamics of Compressible Flow. (3) (3G)** Prerequisites: ME 3111 and 3114. Compressbile flow equations, isentropic flow, normal shock waves, Fanno and Raleigh line flows. Nonsteady one dimensional flow.

(518) **ME 5118. Thermal Environmental Engineering. (3) (3G)** Prerequisite: ME 4111. Application of the thermodynamic and heat transfer principles to the analysis of thermal environmental systems. Topics include thermodynamic properties of moist air, psychometric charts, transfer processes, heating and cooling of moist air, coils, physiological effects of thermal environments, food processing and storage.

(521) **ME 5121. Mechanism Analysis. (3) (3G)** Prerequisite: ME 4121 or consent of the department. Analysis of coplanar and spatial mechanisms, application of matrix methods in analysis of mechanisms, mobility analysis of mechanisms, rigid body guidance, computer aided analysis of mechanisms.

(525) **ME 5125. Vibrations. (3) (3G)** Prerequisite: ME 4143 or consent of the department. Vibration so linear, discrete multiple degree of freedom systems: natural frequency normal modes, principal coordinates, forced oscillations and damping. Approximate methods: iteration, Ray Leigh-Ritz , Galerkin, etc. Applications may include buildings, structures, power transmission lines, turbines, etc.

(546) **ME 5146. Experimental Stress Analysis. (3) (3G)** Prerequisite: ME 4141. Theoretical and experimental techniques of stress and strain analysis, with experimental emphasis on strain gages and instrumentation. Brittle coatings and photoelasticity are also considered. Two lectures and a two-hour lab per week.

(592) **ME 5892. Individualized Study and Projects. (1-6) (1-6G)** Individual investigation and exposition of results. May be repeated for credit.

Courses for Graduate Students Only

(690) **ME 6090. Special Topics. (1-6G)** Directed study of current topics of special interest. May be repeated for credit.

(614) **ME 6113. Advanced Conductive Heat Transfer. (3G)** Prerequisite: ME 4111. Theory of steady and unsteady heat conduction in isotropic and anistropic media. Treatment of concentrated and distributed heat sources. Application of the finite difference and finite element methods.

(620) **ME 6120. Bearing Design and Lubrication. (3G)** Prerequisite: ME 4122 or consent of the department. Hydrodynamic lubrication, fluid film and rolling element bearings, design and control of gas and fluid lubricated bearings.

(621) **ME 6121. Mechanism Synthesis. (3G)** Prerequisite: ME 5121 or consent of the department. Synthesis of coplanar and spatial mechanisms, number and type synthesis, function generator, path generator, optimal synthesis of mechanisms, case studies in optimal design of mechanisms.

(623) **ME 6123. Mechanical Design. (3G)** Prerequisite: ME 4141 or consent of the department. Impact loading on critical sections, fatigue consideration, stress concentration, fluctuating stresses, failure analysis, contact stresses, industrial case studies.

(648) **ME 6126. Dynamics of Machinery. (3G)** Prerequisite: ME 4122 or consent of the department. Application of principle of synamics of machinery, balancing of rigid and flexible rotors. Dynamics of spatial mechanisms. Computer aided dynamic analysis of machinery.

(640) **ME 6141. Applied Elasticity. (3G)** Prerequisites: ME 4141 and consent of instructor. Introduction to theory of elastic media; the fundamentals of stress, strain, stress-strain relationships, compatibility and equilibrium. Applications to two and three dimensional problems. Structural mechanics and energy methods.

(641) **ME 6142. Inelastic Behavior of Materials. (3G)** Prerequisite: ME 6141 or consent of instructor. Introduction to plasticity and linear viscoelasticity. Topics include a study of yield criteria, plastic stress-strain relations, plastic hinge analysis, discrete viscoelastic models, the hereditary integral and selected boundary value problems.

(645) **ME 6145. Advanced Topics in Dynamics. (3G)** Prerequisite: consent of department. Selected advanced topics in dynamics such as Lagrangian dynamics, vibrations of continuous media, stress wave propagation and motion measurement.

(698) **ME 6892. Individualized Study and Projects. (1-6G)** Individual investigation and exposition of results. May be repeated for credit.

691) **ME 6991. Graduate Thesis Research. (1-6G)** Individual investigation culminating in the preparation and presentation of a thesis. May be repeated for credit.

Department of Engineering Technology

Chairperson: Associate Professor Shelnutt
Associate Professors: Christie, Elliott, Liu, Mobley, Priebe, Willis, Wright, Young
Assistant Professors: Alison, Ayala, Wang
Lecturer: Barilovits
Lecturers (Part-time): Avampato, Barrier, Binford, Blue, Britt, Carpenter, Daughtridge, Dubler, Fiss, Hiatt, Hines, Hornick, Khidathong, Lindsay, Meacham, Reeves, Robinson, Russell, Warren, Whisnant
Faculty Associate: Patten

Engineering and technical education have undergone considerable change in the last 25 years. The complexities of space exploration, nuclear power, communications systems, environmental control, information processing, transportation systems, etc. have demanded a great increase in the involvement of professional engineers in theoretical and analytical work. This has resulted in a much greater emphasis upon research and development, science and mathematics in professional engineering curricula.

At the same time, after the more complex devices and systems have been engineered, their design, development and operation require the sophisticated knowledge and skills of practitioners of what might be called the "applied engineering sciences." Programs dedicated to fulfilling this need are now developing rapidly over the United States. The aim and content of these programs are distinctly different from professional engineering curricula.

To provide the appropriate distinction from both the theoretical-professional engineers and from the engineering technicians who are graduated from the two-year technical institutes, the designation "engineering technologist" is being used throughout the United States for the graduates of four-year applied engineering or "engineering technology" curricula.

The two-year technical institute programs in North Carolina and in many other states provide excellent foundation for engineering technology curricula. Therefore, the Engineering Technology program at the University of North Carolina at Charlotte is limited to the junior and senior years, and an Associate in Applied Science degree is required for admission.

Each of the following baccalaureate Engineering Technology curricula is accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology, a specialized accrediting body recognized by the Council on Postsecondary Accreditation.

Civil Engineering Technology (emphases in general civil and construction)
Electrical Engineering Technology (emphases in Electronics and Computer/Electronics)
Mechanical Engineering Technology (emphases in general mechanical and industrial)

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF ENGINEERING TECHNOLOGY

Residence. This residence requirement for the Bachelor of Engineering Technology degree at the University of North Carolina at Charlotte specifies that the last 30 semester hours of credit must be earned at UNCC and that the last 12 semester hours of work in the student's major field must be earned at this University.

Scholastic. A minimum level of scholastic achievement is required of all students in order to continue as degree candidates (see Requirements for Continued Enrollment at paragraph seven of the Academic Regulations for the college of Engineering Majors).

In order to be eligible for the B.E.T. degree, a minimum grade point average (GPA) of 2.00 on all courses attempted at UNCC is required. In addition, a minimum GPA of 2.00 on all courses attempted in the College of Engineering is required.

Course Requirements. Prerequisite courses for entering the Engineering Technology program, normally taken at a technical institute or junior college, are listed on pages 312 and 314.

In addition, the following UNCC courses are required for the B.E.T. degree:

Title	Semester Hours
Chemistry 101 or other Natural Science	3-4
Computer Science (CSC) 1100	4
Economics 2101 or 2102	3
Humanities or Social Science Electives	9
Free Electives	3
Major Electives	3-7
Engineering Analysis	3-9
Specified courses in major area of study (see pages 315-321)	26-39
Total	65-67
Maximum transfer credit for A.A.S. degree	64
Total number of semester hours required for B.E.T. degree	129-131

Requirements for Admission. A student who has graduated from a technical institute or the technical division of a junior college and who wishes to enter the Engineering Technology program at UNCC must meet the following requirements:

1. Have an Associate in Applied Science degree in one of the following fields:

   Civil, Construction, Electrical, Electronic, Environmental, Industrial Engineering, Manufacturing, or Mechanical Engineering Technology, or in Architectural, Building Construction, Design and Drafting, or Surveying Technology.

2. Have an overall grade point average of at least 2.20 or 2.50 for entry into the Manufacturing Engineering Technology track, (based on the 4.0 system) on all courses taken at the technical institute, and

3. Have satisfactorily completed the prerequisite courses for the track which the student plans to enter (see below.)

There is considerable variance in the contents of technical institute programs throughout the United States. Should this result in entrance deficiencies, the student can usually remove these deficiencies at Central Piedmont Community College in Charlotte prior to admission to UNCC, or during the first year at UNCC.

Background Courses Required for Entering the Bachelor of Engineering Technology Program in the Electrical, Mechanical and Civil Tracks

The student must have satisfactorily completed the following subjects in his or her two-year associate degree program.

Quarter hours indicated are minima.

Descriptive Title	Quarter Hours
English Composition, Technical Writing and/or Public Speaking	9
Algebra, Trigonometry and Analytic Geometry with Calculus	13
*Differential and Integral Calculus	5
General Physics (with Laboratory)	8
*Physics or Chemistry (with Laboratory)	4
*Humanities or Social Sciences	6
*Other Subjects	3
Technical Course in Major Area	48**
Total	96**

Electrical
Drafting
D.C. Circuits
A.C. Circuits
Electronic Instruments and Measurements
Vacuum Tubes and Transistors
Transistor Amplifiers and Circuits
Pulse (Wave-shaping) Circuits
Communication Electronics or Control Systems

Mechanical
Drafting
Machine Processes
Statics
*Metallurgy
Strength of Materials
Kinematics or Mechanisms
Design Drafting or Machine Design
Basic Electrical Circuits (or Physics III, Electricity)

Industrial (Emphasis of Mechanical)
Drafting
Statics and Strength of Materials
Production Planning
Work Measurement, or Time and Motion, or Methods Analysis

Civil
Drafting
*Surveying
Statics
Strength of Materials
*Properties of Concrete

Construction (Emphasis of Civil)
Architectural Drafting or Drafting
Architectural Engineering Materials and Methods
*Surveying
Statics and Strength of Materials
Construction Estimates and Costs
Codes, Contracts and Specifications
*Properties of Concrete

*These courses can be taken at UNCC or at a local two-year college.
**The 48 hours of major work must include courses covering all of the subjects in any one of the areas shown on this page.

Manufacturing Engineering Technology

A new BET program track in Manufacturing Engineering Technology is scheduled to begin admitting students for classes starting in Fall of 1986. This track is designed to produce graduates who can be productive in implementing the increasingly automated and computerized systems of manufacturing operations. These graduates will be familiar with the capabilities and limitations of machine tools and the range of manufacturing operations, but the program is oriented toward the information and control systems of manufacturing rather than the design and operation of heavy machine tools. As distinguished from some traditional engineering programs which may focus on the development of new manufacturing technology, this engineering technology curriculum emphasizes the application of current or emerging technology to manufacturing problems. There is an emphasis on laboratory activity in computer-integrated manufacturing, and each student is required to complete three semesters of cooperative work/study experience with an approved employer. Both oral and written communications are stressed throughout the curriculum, beginning with laboratory reports, continuing through attention to writing in all courses, and culminating in formal oral and written presentations for the senior design project.

Graduates from AAS degree programs in Manufacturing, Industrial, Mechanical (or drafting and design), and Electrical/Electronic Engineering Technology are admissible to the program by meeting specific course requirements as described below. Required coursework at UNCC is then dependent on the particular background of each student.

Background Courses Required for Entering the Bachelor of Engineering Technology Program Track in Manufacturing Engineering Technology (Lower Division Course Work Required for Admission)

Lower Division Program in Which AAS Earned	Quarter Hours EET	MET	IET/Mfg.ET
COMMON PREREQUISITES			
English, Tech. Writing, and/or Public Speaking	9	9	9
Algebra, Trigonometry, and Analytic Geometry w/Calculus	13	13	13
Differential and Integral Calculus	5	5	5
General Physics with Laboratory	8	8	8
Physics or Chemistry with Laboratory	4	4	4
Computer Programming	3	3	3
Humanities or Social Sciences	6	6	6
Sub-Total	48	48	48
PREREQUISITE TECHNICAL COURSES (minimum)			
EET EMPHASIS			
Electrical Drafting	3		
D.C. Circuits	3		
A.C. Circuits	3		
Electronic Instrumentaton and Measurements	3		
Vacuum Tubes and Transistors	3		
Transistor Amplifiers and Circuits	3		
Pulse (Wave-shaping) Circuits	3		
Communication Electronics or Control Systems	3		
MET EMPHASIS			
Machine Drafting		3	
Machine Processes		3	
Statics		3	
Kinematics or Mechanisms		3	
Design Drafting or Machine Design		3	
Metallurgy		3	
Strength of Materials		3	
Basic Electrical Circuits		3	
Fluid Mechanics or Fluid Power		3	
IET/Mfg.ET			
Machine Drafting			3
Production Planning			3
Work Measurement or Methods Analysis			3
Statistics			3
Plant Layout			3
Machine Processes			3
Metallurgy			3
Other Technical Courses	24	21	27
Total Lower Division (Minimum)	96	96	96

CURRICULUM REQUIREMENTS FOR THE BACHELOR OF ENGINEERING TECHNOLOGY DEGREE

CIVIL ENGINEERING TECHNOLOGY PROGRAM

Junior Year

CET 3111 Structural Analysis I	3
CET 3121 Foundations and Earthwork	3
CET 3151 Soil Testing Laboratory	1
ET 3170 Basic Engineering Analysis	3
CSC 1100 Algorithmic Language (e)	4
*CHE 1101 Principles of Chemistry of ES 1102 Earth Science-Geology (a)	4
	18

CET 3112 Structural Analysis II	3
CET 3132 Hydraulics	3
CET 3154 Asphalt Laboratory	1
ET 3171 Engineering Analysis I	3
ECO 2101 or 2102 Principles of Economics -Macro or Micro (f)	3
Humanities or Social Science Electives (b) (100 level)	3
	16

Senior Year

CET 3212 Structural Steel Design	3
CET 3262 Introduction to Environmental Engineering	3
ET 3273 Engineering Analysis III	3
Major Elective (c)	1
Humanities or Social Science Elective (b) (200 level)	3
Humanities or Social Science Elective (b) (300 level)	3
	16

CET 3211 Reinforced Concrete Design	3
Major Elective (c)	6
CET 3241 Highway Design and Construction	3
Free Elective (d)	3
	15

Students who are primarily interested in environmental technology must take Chemistry 1101; those who are primarily interested in construction must take Earth Science 1102.

Civil Engineering Technology

Construction Engineering Technology Emphasis

Junior Year

CET 3111 Structural Analysis I	3
CET 3121 Foundations and Earthwork	3
CET 3151 Soil Testing Laboratory	1
ET 3170 Basic Engineering Analysis	3
CSC 1100 Algorithmic Languages (e)	4
ES 1102 Earth-Science Geology	4
	18

CET 3112 Structural Analysis II	3
MET 3293 HVAC and Mechanical Systems	3
ET 3171 Engineering Analysis 1	3
ECO 2101 or 2102 Principles of Economics-Macro or Micro (f)	3
CET 3132 Hydraulics	3
	15

Senior Year

CET 3212 Structural Steel Design	3
CET 3281 Cost Estimating 1	3
ET 3243 Project Management Tech	3
CET 3155 Construction Materials Lab	1
Humanities or Social Science Elective (b) (100 level)	3
Humanities or Social Science Elective (b) (200 level)	3
	16

CET 3211 Reinforced Concrete Design	3
Major Elective (c)	3
Major Elective (c)	3
Humanities or Social Science Elective (b) (300 level)	3
Major Elective (c)	1
Free Elective (d)	3
	16

Electrical Engineering Technology

Computer/Electronics Engineering Technology Emphasis

Junior Year

EET 3151 Electromechanical Lab	1
EET 3181 Combinational Circuits	3
*ET 3171 Engineering Analysis I	3
CSC 1100 Algorithmic Languages (e)	4
CHE 1101 Principles of Chemistry (a)	3
EET 3113 Analysis of Linear Networks I	3
	17

EET 3114 Analysis of Linear Networks II	3
EET 3112 Semiconductors	3
EET 3182 Logical Design of Sequential Circuits	3
ET 3172 Engineering Analysis II	3
ECO 2101 or 2101 Principles Economics (f)	3
EET 3154 Digital Electronics Lab	1
	16

Senior Year

EET 3281 Computer Design	3
EET 3251 Digital Computer Lab	1
EET 3211 Technology of Active Networks	3
EET 3285 Assembly Language Programming	3
Free Elective (d)	3
Humanities or Social Science Elective (b)	3
	16

EET 3212 Active Networks II	3
EET 3254 Semiconductor Circuits	1
Humanities or Social Science Elective (b)	3
Humanities or Social Science Elective (b)	3
Major Elective (c)	3
Major Elective (c)	3
	16

**For students who do not have a strong background in algebra and trigonometry, it is recommended that ET 3070 be taken prior to ET 3171. This should be taken during the summer preceeding his or her regular first semester if the student plans to complete the program in two years.*

Electrical Engineering Technology

Electronics Emphasis

Junior Year

EET 3151 Electromechanical Lab	1	EET 3114 Analysis of Linear Networks II	3
EET 3181 Introduction to Logical Design	3	EET 3112 Semiconductors	3
*ET 3171 Engineering Analysis I	3	EET 3182 Design of Sequential Circuits	3
CSC 1100 Algorithmic Languages (e)	4	ET 3172 Engineering Analysis II	3
CHE 1101 Principles of Chemistry (a)	3	ECO 2101 or 2102 Principles of Economics (f)	3
EET 3113 Analysis of Linear Networks I	3	EET 3154 Digital Electronics Lab	1
	17		16

Senior Year

EET 3231 Transmission Lines and Antennas	3	EET 3212 Active Networks II	3
EET 3253 Transmission Lines and Antennas Lab	1	EET 3254 Semiconductor Circuits	1
EET 3211 Active Networks I	3	EET 3222 Automatic Controls	3
Free Elective (d)	3	EET 3233 Modulation and Transmission	3
Humanities or Social Science Electives (b)	6	Major Elective (c)	3
		Humanities or Social Science Electives (b)	3
	16		16

**For students who do not have a strong background in algebra and trigonometry, it is recommended that ET 3170 be taken prior to ET 3171. This should be taken during the summer preceeding his or her regular first semester if the student plans to complete the program in two years.*

Mechanical Engineering Technology

Junior Year

MET 3123 Strength of Materials	3
MET 3133 Fluid Mechanics	3
MET 3152 Stress Analysis Lab	1
*ET 3171 Engineering Analysis I	3
CSC 1100 Algorithmic Languages (e)	4
CHE 1101 Principles of Chemistry (a)	3
	17

MET 3114 Dynamics	4
MET 3213 Machine Design	3
MET 3164 Instrumentation and Control	4
MET 3143 Thermodynamics	3
MET 3151 Fluid Mechanics Lab	1
	15

Senior Year

MET 3232 Senior Design Project I	2
MET 3252 Thermodynamics Lab	1
MET 3251 Instrumentation Lab	1
ET 3273 Engineering Analysis III	3
Major Elective	3
IET 3223 Engineering Economics	3
Humanities or Social Science Eletive (b)	3
	16

MET 3242 Senior Design Project II	2
ECO 2101 or 2102 Principles of Economics Macro/Micro (3)	3
Major Elective (c)	3
Humanities or Social Science Elective (b)	3
Humanities or Social Science Elective (b)	3
Free Elective (d)	3
	17

Mechanical Engineering Technology (Industrial Engineering Emphasis)

This program is offered only as a part-time evening program. With due regard for prerequisites, and by taking two courses per semester (including summer) it should be possible to complete the program in four years, essentially in the sequence shown.

*ET 3171 Engineering Analysis I	3
MET 3133 Fluid Mechanics	3
CSC 1100 Algorithmic Languages (e)	4
IET 3103 Methods Analysis	3
IET 3151 Methods Analysis Lab	1
Humanities or Social Science Elective (b)	3
MAT 1220 Elements of Statistics	3
MET 3123 Strength of Materials	3
MET 3151 Fluid Mechanics Lab	1
MET 3114 Dynamics	4
IET 3123 Production Control Systems	3
IET 3223 Engineering Economics	3
MAT 2111 Introduction to Operations Research	3

ECO 2101 or 2102 Principles of Economics Macro/Micro (c)	3
IET 3203 Plant Layout	3
IET 3251 Plant Layout Lab	3251
Humanities or Social Science Elective (b)	3
GGY 3150 Manufacturing Geography	3
IET 3213 Quality Control	3
IET 3211 Directed Projects	1
Major Elective	6
Humanities or Social Science Elective (b)	3
Free Elective	3
	66

**For students who do not have a strong background in algebra and trigonometry, it is recommended that ET 3170 be taken prior to ET 3171. This should be taken during the summer preceeding his or her regular first semester if the student plans to complete the program in four years.*

Manufacturing Engineering Technology
Upper Division Course Work

Lower Division Program in which AAS Earned	Semester Hours EET	MET	IET/Mfg. ET
COMMON CORE COURSES			
Chemistry - CHE 1101	3	3	3
Engineering Cooperative Education - EGR 3590, 3695	3	3	3
Humanities/Social Science Electives (b)	9	9	9
Economics - ECO 2101 or 2102 (e)	3	3	3
Engineering Economics - IET 3223	3	3	3
Algorithmic Language - CSC 1100 (e)	4	4	4
Engineering Analysis I - ET 3171	3	3	3
Engineering Analysis II - ET 3172	3	—	—
Engineering Analysis III - ET 3273	—	3	3
Manufacturing Processes - MT 3111	3	3	—
Computer Integrated Mfg. (CIM) - MT 3131	3	3	3
CIM Laboratory - 3251	2	2	2
Statistics - MAT 1220	3	3	—
Quality Control - IET 3213	3	3	3
Senior Design Project - MET 3232, 3242	4	4	4
Sub-Total	49	49	49
SPECIALIZED CORE COURSES			
EET			
Circuit Analysis - EET 3113, 3114	6	—	—
Introduction to Logical Design - EET 3181	3	—	—
Design of Sequential Circuits - EET 3182	3	—	—
Electromechanical Technology Laboratory - EET 3151	1	—	—
Digital Electronics Laboratory - EET 3154	1	—	—
MET/IET/Mfg.ET			
Instrumentation and Control - MET 3165	—	4	4
Digital Process Control - MT 3181	—	3	—
Instrumentation Laboratory - MET 3251	—	1	1
Operations Management - BUS 3100	—	—	3
IET-MET Lab Course	—	1	1
Directed Electives			
Other Engineering Technology (ET) Courses	0	3	6
Hours from the following:	4	6	9
Operations Management - BUS 3100	*	*	N/A
Data Base Design - CSC 2161, 3160	*	*	*
Intro. to Industrial Psychology - PSY 2171	*	*	*
Elements of Statistics II - MAT 1123	*	*	*
Any 2000 Level or Higher Mathematics Course	*	*	*
Senior Seminar in Industrial Psychology - PSY 4670	*	*	*
Technical Writing - ENG 2014	*	*	*
Upper Division Total	67	67	67
Curriculum Total	131	131	131

**Admission for classes beginning Fall 1986.*

Notes

a. A student who has previously taken a college-level course in general chemistry shall substitute for this requirement another course in chemistry, physics, biology or earth science as shown in the table below.

Students who have previously taken	Shall take at UNCC
3 quarters of physics and no chemistry	Chemistry 1101
2 quarters of physics and 1 quarter of chemistry	Physics 1102 (Physics 1101 with permission)
3 quarters of physics and at least 1 quarter of chemistry (4 qtr. hours)	Earth Science 1101 or 1102 Biology 1101 or Physics 1130

b. Humanities and social science electives must be selected from a current list of approved courses which is maintained in the departmental office and shall include a minimum of one sophomore and one junior course.

c. Major electives must be upper level courses related to the student's field of specialization.

d. Free electives are intended to provide the student an opportunity:

1. to take an additional departmental major course,
2. to investigate other areas of interest outside the College of Engineering,
3. to support an upper-division sequence in the humanities or social science, or
4. to study a foreign language.

Courses selected as free electives should normally be sophomore or higher and must be approved by the student's adviser after the student has outlined the sequence of electives that he or she plans to pursue. No course may be taken for elective credit that covers material for which the student has received credit in another course. A maximum of three semester hours credit is allowed in physical education.

e. Fortran unless student has completed a Fortran course in a two year program, in which case PASCAL or other high level scientific/engineering languages may be taken.

f. Students who have taken an economics course equivalent to ECO 2101 or 2102 in their two-year programs should select a social science or humanities course.

COURSE DESCRIPTIONS

ENGINEERING TECHNOLOGY

An Engineering Technology course may be used for elective or minor credit by a student in another major only with the prior approval of the student's major department and the Department of Engineering Technology.

(490) **ET 3000. Special Topics in Engineering Technology. (1-4)** Prerequisite: senior standing in Engineering Technology or consent of the Department. Examination of specific new areas which are emerging in the various fields of engineering technology. The course builds upon the knowledge the students have gained from their engineering technology curriculum. May be repeated for credit.

(370) **ET 3170. Basic Engineering Analysis. (3)** Prerequisite: College algebra, trigonometry and analytic geometry. A course designed to give students intensive practice in the methods of solving engineering problems which require a knowledge of algebra, determinants, trigonometry and analytic geometry.

(371) **ET 3171. Engineering Analysis I. (3)** Differential and integral calculus. Methods of solving engineering problems which involve the differentiation and integration of algebraic, trigonometric and logarithmic functions; use of integral tables.

(471) **ET 3172. Engineering Analysis II. (3)** Prerequisite: ET 3171. A study of constant coefficient linear differential equations, including nonhomogeneous equations; Laplace transforms and the use of Laplace transform tables; applications to the analysis of dynamic systems.

(481) **ET 3233. Computer Graphic Technology. (3)** Study of computer graphics as a design drafting tool. Using computer driven plotters and digitizers to prepare engineering drawings and illustrations.

(482) **ET 3243. Project Management Technology. (3)** Use of CPM and other network analysis methods for planning, managing and controlling projects.

(473) **ET 3273. Engineering Analysis III. (3)** Prerequisite: CSC 1100 and ET 3171. Elementary numerical methods for the solution of engineering problems on the digital computer. Emphasis on applications to civil and mechanical engineering technology, using both commercial and student written programs.

CIVIL ENGINEERING TECHNOLOGY (CET)

(250) **CET 2150. Properties of Materials. (1)** Laboratory testing of concrete, metal and wood materials. Emphasis on the development and analysis of stress-strain characteristics, using ASTM specifications with regard to testing procedures. Three laboratory hours per week. No credit towards degree requirements for Engineering Technology majors.

(311) **CET 3111. Structural Analysis I. (3)** Prerequisite: elementary courses in statics and strength of materials. Prerequisite or corequisite: ET 3170. Basic concepts and principles of structural analysis relating to beams, trusses and frame structures. Analysis of statistically determinate structures under fixed and moving loads, influence lines for moving loads. Approximate analysis of indeterminate structures. Emphasis on practical aspects of structural analysis.

(312) **CET 3112. Structural Analysis II. (3)** Prerequisite: CET 3111. Deflection of structures. Analysis of statically indeterminate structures using the methods of three-moments, consistent distortions, slope deflection and moment-distribution. An introduction to matrix methods of structural analysis.

(321) **CET 3121. Foundations and Earthwork. (3)** Prerequisite or corequisite: ET 3170. Study of basic design and construction of foundations. Background theories are generally introduced in concise forms as formulas or charts. Emphasis on practical aspects of foundation design and earthwork construction.

(332) **CET 3132. Hydraulics. (3)** Prerequisite or corequisite: ET 3170. A study of the fundamental principles of hydraulics and their applications in engineering practice, including the fundamentals of fluid flow through orifices, tubes and pipes, in open channels, and over weirs.

(351) **CET 3151. Soil Testing Laboratory. (1)** Prerequisite or corequisite: CET 3121. A laboratory designed to familiarize the student with the common laboratory soil tests and analysis procedures with emphasis on the significance of the various tests, the testing procedures and the detailed computations. Three laboratory hours per week.

(354) **CET 3154. Asphalt and Asphalt Mixtures Laboratory. (1)** Study of physical properties of asphalt, of aggregates and their combinations, principles and practice in the design, construction and control of asphalt mixtures; laboratory tests for aslphalts, aggregates and mixture design including specimen preparation and stability evaluation. Three laboratory hours per week.

(355) **CET 3155. Construction Materials Laboratory. (1)** A review of applicable standard specifications and methods of testing a variety of construction materials. Three laboratory hours each week.

(411) **CET 3211. Reinforced Concrete Design. (3)** Prerequisite or corequisite: CET 3112. Design of rectangular beams, T-beams, columns, reinforced concrete floor systems and reinforced concrete footings, according to the ACI code. Quality control of concrete and structural inspection.

(412) **CET 3212. Structural Steel Design. (3)** Prerequisite: CET 3112. Design of beams and columns, floor framing, tension and compression members, bolted and welded connections, according to AISC specifications.

(413) **CET 3213. Wood Structural Technology.** (3) Prerequisite: CET 3111. Design of floors, beams, columns and trusses of both solid and glued laminated wood; includes wood joints and concrete forms.

(441) **CET 3241. Highway Design and Construction.** (3) Introduction to highway planning, economic considerations and traffic engineering. Design and construction of modern highways including grade separations and interchanges.

(442) **CET 3242. Pavement Design.** (3) Prerequisite: CET 3241. Study of stresses in flexible and rigid pavements, and properties of pavement components. Design of rigid and flexible pavements. Discussion of pavement performance and failures and of pavement strengthening.

(451) **CET 3251. Photogrammetry.** (1) Prerequisite: course in elementary surveying and CSC 1100. Fundamental principles of photogrammetry and photogrammetric procedures used in engineering practice. Students learn how to use modern photogrammetric equipment.

(452) **CET 3252. Environmental Laboratory.** (1) Prerequisite or corequisite: CET 3262. Laboratory on the analysis of water and sewage and problems related to environmental control. Three laboratory hours each week.

(453) **CET 3253. Construction Engineering Technology Field Laboratory.** (1) Prerequisite: senior standing. A synthesis of prior work, using fundamental principles as applied in a direct project. Three laboratory hours per week.

(462) **CET 3262. Introduction to Environmental Engineering.** (3) Prerequisite: CET 3132. Study of water supply, treatment and distribution and liquid-waste disposal systems.

(463) **CET 3263. Industrial Waste Water Technology.** (3) Prerequisite: CET 3132. Study of unit processes and the principles of industrial waste pollution control and treatability.

(464) **CET 3264. Introduction to Urban Engineering.** (3) Study of city planning, including street layout and lighting and the design of water, sewerage, storm drain, and solid-waste collection and disposal systems. Street maintenance and traffic analysis; air pollution control.

(466) **CET 3266. Introduction to Air Pollution Control Technology.** (3) Prerequisite: consent of instructor. Study of the sources of air pollution, air quality and emission standards, monitoring of air quality and the control of air pollution.

(467) **CET 3267. Introductory Public Health Engineering Technology.** (3) Prerequisite: consent of instructor. Study of the public health engineering in rural, urban and industrial centers, with emphasis on water, housing, heating, cooling, ventilation, noise, milk, food, insects and rodents, monitoring and control.

(472) **CET 3272. Land Surveying.** (3) Prerequisites: basic course in surveying. Advanced principles and practice of land surveying. Preparation for the National Council of Engineering Examiners Land Surveyors examination and the State examination for land surveyors.

(473) **CET 3273. Control Surveying.** (3) Prerequisite: basic course in surveying. Theory, equipment and data reduction of electronic distance measurements; control specifications, methods and problems in obtaining large area angular measurements; precise leveling triangulation with introduction to least square techniques.

(481) **CET 3281. Cost Estimating I.** (3) Methods used to estimate costs of construction activities. Develops the methods and procedures for preparing quantity surveys and to estimate labor and equipment requirements.

(482) **CET 3282. Cost Estimating II.** (3) Prerequisite: CET 3281. Estimating techniques applied to project work. Topics include subcontractors, plant and overhead costs, profit and bidding.

ELECTRICAL ENGINEERING TECHNOLOGY (EET)

(312) **EET 3112. Semiconductors.** (3) Prerequisite or corequisite: EET 3113 and CHE 1101. Atomic structure; properties of semiconductor materials; diodes, bipolar transistors; integrated circuit fabrication; field-effect transistors.

(313) **EET 3113. Analysis of Linear Networks I. (3)** Prerequisite or corequisite: ET 3171. Resistive circuits; current and voltage sources; Kirchoff's laws, network theorems, RC and RL circuits; sinusoidal excitation and phasors; dependent sources.

(314) **EET 3114. Analysis of Linear Networks II. (3)** Prerequisites: EET 3113 and CSC 1100. Prerequisite or corequisite: ET 3172. AC steady state analysis; average power; effective voltage and current; complex impedance concepts; applications of network theorems, frequency response; RLC networks and second order circuits; transformers; application of computers to network problems.

(351) **EET 3151. Electromechanical Laboratory. (1)** Prerequisite or corequisite: EET 3181 and 3113. Operation of basic types of D.C. and A.C. machines; basic A.C. circuits; digital circuits using SSI components. Three laboratory hours per week.

(354) **EET 3154. Digital Electronics Laboratory. (1)** Prerequisite: EET 3151. Prerequisite or corequisite: EET 3182. TTL and CMOS characteristics; basic combinational circuits. MSI circuits; latches and flip-flops; applications of PROMS; sequential circuits. Three laboratory hours per week.

(381) **EET 3181. Combinational Circuits. (3)** Boolean algebra; basic design procedurs using SSI and MSI; circuit optimization; adders, decoders, multiplexers, and read-only memories.

(382) **EET 3182. Design of Sequential Circuits. (3)** Prerequisite: EET 3181. Operation of various types of flip flops; analysis and synthesis of clocked sequential circuits; state tables and state diagrams; counters, registers, memories.

(411) **EET 3211. Active Networks I. (3)** Prerequisite: EET 3114. Rectifiers; amplifiers analysis; transistor biasing; small signal models; feedback amplifier analysis; amplifier frequency response.

(412) **EET 3212. Active Networks II. (3)** Prerequisites: EET 3211. Amplifier frequency response (continued); feedback amplifier frequency response; operational amplifiers and applications.

(422) **EET 3222. Automatic Controls. (3)** Prerequisite or corequisite: EET 3212. Automatic Control concepts; mathematical models; control system components; transient and frequency response; control system design.

(431) **EET 3231. Transmission Lines and Antennas. (3)** Prerequisites: EET 3114 and ET 3172. Distributed parameters applied to transmission line analysis; Smith chart; impedance matching; networks wave propagation; radiation; waveguides; antennas; resonators; components.

(483) **EET 3233. Modulation and Transmission. (3)** Prerequisites: ET 3172 and EET 3114. Introduction to Fourier Analysis. Includes frequency analysis of signals and noise; amplitude, frequency, and pulse modulation techniques; concepts of system information capacity; transfer functions; impulse response of networks.

(451) **EET 3251. Digital Computer Laboratory. (1)** Prerequisite: EET 3154. Prerequisite or corequisite: EET 3281 and 3285. Microcomputer interfacing; D/A and A/D converters; typical I/O circuits. Three laboratory hours per week.

(453) **EET 3253. Transmission Lines and Antennas Laboratory. (1)** Prerequisite or corequisite: EET 3231. Lab correlated with EET 4231. Measurements of transmisison line parameters using a Time Domain Reflectometer; measurements of impedance of transmission lines, antennas and other networks using the slotted line, directional couplers and admittance meters.

(454) **EET 3254. Semiconductor Circuits Laboratory. (1)** Prerequisite or corequisite: EET 3212. Measurement of P-N diode characteristics; transistor characteristics; amplifier bias design; h-parameter measurements; J-FET characteristics; frequency response and hybrid Pi parameters; operational amplifiers.

(461) **EET 3261. Industrial Instrumentation. (3)** Prerequisite: EET 3112 and 3114. Pneumatic and electrical sensors and transducers used for measuring physical processes, such as temperature, pressure and flow rate; selection criteria; standards and calibration.

(481) **EET 3281. Computer Design. (3)** Prerequisite: EET 3182. Prerequisite or corequisite: EET 3285. Organization and design approaches for computer systems. Hardware-software relationships. Microprogramming. Arithmatic algorithms. Input-output design; multiprocessor systems and networks.

(484) **EET 3284. Design of Real-Time Systems. (3)** Prerequisites: EET 3285. Prerequisite or corequisite: EET 3281.Characteristics and applications of real-time computer systems, especially as applied to process control, monitoring, and data collection; the computer as a part of the total system, programming for real-time applications; reliability and maintainability; effects of downtime.

(385) **EET 3285. Assembly-Language Programming. (3)** Prerequisites: EET 3182 and CSC 1100. PDP-11 Machine and assembly language programming; basic PDP-11 architecture; use of interactive terminals with the UNIX operating system.

(486) **EET 3286. Microcomputer Applications. (3)** Prerequisite: EET 3281. Architecture, instruction set, and bus structure of representative microprocessors; assembly language programming; interfacing experiments. Two lecture hours and three laboratory hours per week.

INDUSTRIAL ENGINEERING TECHNOLOGY (IET)

(311) **IET 3103. Methods Analysis. (3)** Analysis of work methods; a study of work measurement systems; regression techniques in formula construction; progress curves.

(411) **IET 3123. Production Control Systems. (3)** Prerequisite: Statistics. Principles, analysis and design of production and inventory planning and control systems. Demand forecasting, production scheduling and control systems and introduction to CPM.

(412) **IET 3133. Quality Control. (3)** Prerequisite: Statistics. The theory and application of inspection sampl..g plans and control charts for the design, specification and control of product quality.

(351) **IET 3151. Method Analysis Laboratory. (1)** Prerequisite or corequisite: IET 3103. Analysis and design of work methods; principles of motion study; work measurement by direct and predetermined motion-time systems; video tape and motion picture analysis.

(421) **IET 3203. Plant Layout. (3)** Prerequisite: IET 3103. Designing a plant or office with respect to material handling, machine location, auxiliary services, capital requirements, safety and personnel organization.

(431) **IET 3223. Engineering Economics. (3)** Principles of evaluating alternative engineering proposals. Economic measures of effectiveness, costs and cost estimation, basic comparative models, breakeven and replacement analysis.

(441) **IET 3233. Occupational Safety. (3)** Causes and prevention of industrial accidents. Hazardous processes and material. Design of accident prevention programs.

(442) **IET 3243. Occupational Health Technology. (3)** Methodology and philosophy of evaluating and monitoring the work environment for human stresses and toxic substances which affect the health of the worker. Topics include gases, vapors, fumes and dust; radioactivity hazards; occupational diseases; thermal stress; illumination and exhaust ventilation.

(451) **IET 3251. Plant Layout and Materials Handling Laboratory. (1)** Prerequisite or corequisite: IET 3203. Analysis and design of material handling systems; specifications of system components.

(462) **IET 3263. Human Factors. (3)** Human capabilities and limitations affecting communications and response in man-machine systems. Physiological and psychological fundamentals; anthropometrics.

(452) **IET 3811. Directed Projects. (1)** Prerequisite: senior standing. A synthesis of prior work using fundamental principles applied in a directed project. Design of production system and subsystems.

MANUFACTURING ENGINEERING TECHNOLOGY (MT)

MT 3111. Manufacturing Processes. (3) Capabilities, limitations, and operating characteristics of families of machine tools and processes; casting, etching, cutting, forming, joining, fabricating, and inspection machinery, including industrial robots.

MT 3131. Computer Integrated Manufacturing (CIM). (3) Prerequisite: MT 3111. Automated manufacturing systems involving computers to mointor vendor input, process variations, component selection and routing, and test and evaluation of products. Applications involving integration of computer aided design (CAD) systems with computer aided manufacturing (CAM) systems. Real-time reporting of quality and productivity for management.

MT 3181. Digital Process Control. (3) Prerequisites: MT 3111 and MET 3164. Applications and programming of microprocessors for control of manufacturing processes. Interfaces with sensors, actuators, and computer systems. Includes classroom and laboratory demonstrations.

MT 3251. CIM Laboratory. (3) Experiments with computer control of processes, including robotics. Measurement of physical variables for monitoring, controlling, and testing production operations. Application of microprocessors and micro computers to system control and status reporting. One hour class, three hours laboratory each week.

MECHANICAL ENGINEERING TECHNOLOGY (MET)

(312) **MET 3114. Dynamics. (4)** Prerequisite: statistics, differential and integral calculus. The dynamic behavior of machine elements; translation and rotation of a rigid body (including a review of topics in kinematics), the princiiples of conservation of energy and momentum.

(322) **MET 3123. Strength of Materials. (3)** Prerequisites: Statistics, differential and integral calculus. Stress-strain relationships resulting from direct loads, torsional loads and bending loads, and the results obtained from applying more than one of these loads simultaneously. Beam deflection and column loading.

(331) **MET 3133. Fluid Mechanics. (3)** Fundamental principles of fluid mechanics. Topics include manometry, buoyancy, forces on submerged bodies. Bernoulli's equation with applications, orifices, pipe losses and an introduction to hydrodynamics.

(341) **MET 3143. Thermodynamics. (3)** Prerequisite: Eifferential and Integral Calculus. Fundamentals of thermodynamics including work and heat; classical approach to first and second laws of thermodynamics; ideal gas, entropy, reversibility, irreversibility, and study of various processes and cycles.

(351) **MET 3151. Fluid Mechanics Laboratory. (1)** Prerequisite or corequisite: MET 3133. Flow through conduits and in open channels, the experimental determination of fluid specific weights, viscosity and flash and fire points. Flow measuring devices such as orifices, venturi tubes, anemometers and pitot tubes. Laminar-turbulent flow and stability.

(352) **MET 3152. Stress Analysis Laboratory. (1)** Prerequisite or corequisite: MET 3123. Experiments illustrating stress-strain relationships in engineering materials and the use of brittle coating, photoelasticity and electrical-resistance strain gages.

(373) **MET 3164. Instrumentation and Controls. (4)** Introduction to instrumentation for measurement and control of physical variables, with emphasis on electronic systems. Review of basic circuit analysis, electrical instruments, sensors and measurement principles and a survey of automatic controls from a systems point of view.

(411) **MET 3213. Machine Design I. (3)** Prerequisite: MET 3114. Prerequisite or corequisite: MET 3123. Analysis and design of clutches, brakes, belts and roller chain. Indeterminate normal loading, superposition of stresses and deflection, compound stresses, columns and fatigue. Theories of failure. Shaft design, deflections of shafts with nonuniform moments of inertia involving computer verification. Antifriction bearings, engineering materials, helical compression springs. Small mechanical component and systems designs.

(412) **MET 3223. Machine Design II. (3)** Prerequisite: MET 3213. A continuation of MET 3213 with emphasis on new methods of problem solving and opportunities to integrate previously attained skills and knowledge into the design and optimization of small machine systems.

(421-422) **MET 3232 and MET 3242. Senior Design Project I and II. (2) (2)** Prerequisites: MET 3143 and 3213. Corequisite or prequisites: MET 3154 or permission. A two-semester course sequence in which each student conceives, proposes and implements a senior level design project which demonstrates his abilities as developed by the course work he has taken thus far. Each student uses industrial project planning techniques to complete a project proposal and plans and makes substantial progress toward implementation in the first semester and completes the project including design evaluation during the second semester. One hour class and three hours lab each week.

(452) **MET 3251. Instrumentation Laboratory. (1)** Prerequisite or corequisite: MET 3164. Practice in the use of the various instrumentation devices studied in MET 3164.

(453) **MET 3252. Thermodynamics and Heat Transfer Laboratory. (1)** Prerequisite or corequisite: MET 3143. Experimentation involving the fundamental principles of thermodynamics and heat transfer, as applied to internal combustion engines, steam engines, engine dynamometers, refrigeration and heat pumps, solar energy systems, and heat exchangers. Three laboratory hours per week.

(432) **MET 3263. Fluid Power. (3)** Prerequisite: MET 3133. Mechanical and fluid power and the conversion of one to the other. Components and system efficiencies including those consisting of cascaded components. Performance evaluation of such hydraulic components as pumps, motors, valves and metering devices. Viscosity, bulk modulus, noise, optimum performance and system design will be considered.

(441) **MET 3273. Air Conditioning Systems. (3)** Prerequisite: MET 3143. Functions and operating characteristics of the major components of refrigerating machines, heat pumps, boilers, furnaces, heat exchangers, solar collectors, fans and pumps. Emphasis on sizing, economics and performance characteristics. Includes coverage of psychometric principles and fan and pump laws.

(443) **MET 3283. Modern Techniques in Energy Conservation and Utilization. (3)** Prerequisites: MET 3143 or consent of the instructor. Survey of current topics that may include solar energy, basic nuclear reactor technology, ammonia based Rankine cycle, absorption refrigeration cycle, heat pump cycle, techniques for energy conservation in new construction and techniques for retrofitting existing energy utilization systems.

(481) **MET 3293. Mechanical, Plumbing and Electrical Systems for Buildings. (3)** Basic theory and practical application of heating, ventilating, air conditioning, plumbing and electrical systems in construction. Include study of National Fire and Plumbing Codes.

Department of Computer Science

Acting Chairperson: Professor Schell
Professor: Allen
Associate Professors: Chen, Ras, Summers
Visiting Associate Professors: Gyires, Banachowski
Assistant Professor: Modaress-Razavi
Lecturers: Cannon, Chevrier, Frazier, Grubbs, Hinson, Lejk, Lover, Neilforoshan-Dardashty, Reiter, Smith, Thomas
Adjunct Professor: Pawlak

BACCALAUREATE DEGREES

Two baccalaureate degrees are offered by the Department of Computer Science, a Bachelor of Arts degree and a Bachelor of Science degree.

MAJOR IN COMPUTER SCIENCE

A major for the B.A. degree in Computer Science consists of a minimum of 17 hours of mathematics courses numbered 1140 and above and 29 semester hours of approved computer science courses. These currently include Mathematics 1141, 1142, 2164, 2165 and three semester hours of approved mathematics courses numbered 2000 or above; and Computer Science 1100, 2113, 2140, 2141, 2161, 2188, 2189, (3141 or 3650), 3160 and six semester hours of approved computer science courses numbered 3000 or above.

A major for the B.S. degree in Computer Science consists of a minimum of 20 semester hours of mathematics courses numbered 1140 and above and 40 semester hours of computer science courses. These currently include Mathematics 1141, 1152, 2164, 2165 and six semester hours of approved mathematics courses numbered 2000 or above; and Computer Science 1100, 2113, 2141, 2161, (2123 or 2175), 2188, 2189, 3141, 3160, six semester hours of approved computer science courses numbered 3000 and above and a six-hour senior project (Computer Science 3650 and 3651).

Both the B.A. and the B.S. programs must include a component of related work. This component consists of 15 semester hours of approved non-computer science courses forming an integrated program of secondary strength or of nine semester hours of approved mathematics courses at the 3000 level or above.

Students working toward the B.S. degree must complete Physics 2221, 2221L, 2231 and 2231L. These courses also will satisfy the laboratory sciences requirements.

MINOR IN COMPUTER SCIENCE

A minor in Computer Science consists of Computer Science 1100, 2113, 2140, 2161, 3141; one of Computer Science 3160, 3162 or 317X; and a mathematics core of three courses: (a) Mathematics 1141, 2164 and 2165 or (b) Mathematics 1120, 122x or 2122, 2121 or 2111.

SUGGESTED CURRICULUM FOR THE B.S. DEGREE IN COMPUTER SCIENCE

Freshman Year

Mathematics 1141	4	Mathematics 1142	4
Computer Science 1100	4	Computer Science 2113	3
English 1101	3	English 1102	3
Humanities	3	Humanities	3
		Elective	3
	14		16

Sophomore Year

Mathematics 2164	3	Mathematics 2165	3
Computer Science 2140	3	Computer Science 2141	3
Computer Science 2123 or 2175	3	Computer Science 2161	3
Physics 2221	3	Physics 2231	3
Physics 2221L	1	Physics 2231L	1
Social Science	3	Social Science	3
	16		16

Junior Year

Mathematics 2xxx or 3xxx	3	Mathematics 2xxx or 3xxx	3
Computer Science 3141	3	Computer Science 3160	3
Computer Science 2188	0	Computer Science 2189	1
Related Work	3	Related Work	3
Electives	6	Electives	6
	15		16

Senior Year

Computer Science 3xxx/4xxx	3	Computer Science 3xxx/4xxx	3
Computer Science 3650	3	Computer Science 3651	3
Related Work	6	Related Work	3
Elective	3	Elective	3
	15		12

SUGGESTED CURRICULUM FOR THE B.A. DEGREE IN COMPUTER SCIENCE

Freshman Year

Mathematics 1141	4	Mathematics 1142	4
Computer Science 1100	4	Computer Science 2113	3
English 1101	3	English 1102	3
Humanities	3	Humanities	3
		Elective	3
	14		16

Sophomore Year

Mathematics 2164	3	Mathematics 2165	3
Computer Science 2140	3	Computer Science 2141	3
Social Science	3	Social Science	3
Science	4	Science	4
Related Work	3	Related Work	3
	16		16

Junior Year

Mathematics 2xxx/3xxx	3	Computer Science 3xxx	3
Computer Science 2188	0	Computer Science 2189	1
Computer Science 2161	3	Related Work	3
Related Work	3	Electives	9
Electives	6		
	15		16

Senior Year

Computer Science 3xxx	3	Computer Science 3141/3650	3
Computer Science 3160	3	Electives	12
Related Work	3		
Electives	6		
	15		15

Courses for Undergraduates

(100) **CSC 1000. Algorithmic Languages I. (4)** Prerequisite or corequisite: MAT 1101 or 1103 with a grade of C or better or placement by the Department. Basic concepts and terminology of computers, problem solving with computers, programming techniques required to formulate and program various numerical and non-numerical algorithms, through study of a higher-level programming language such as FORTRAN IV. (Credit not given for both CSC 1100 and 1101.)

(150) **CSC 1050. Introductory Topics in Computer Science. (1-3)** Prerequisite: CSC 1100 or consent of the Department. Topics in computer science selected to supplement the regular course offerings, usually in the form of an additional language. (May be repeated for additional credit as topics vary and with the approval of the Department.)

(101) **CSC 1101. Introduction to Computer Concepts. (3)** Prerequisite or corequisite: MAT 1101 or 1103. For non-CSC majors who desire some acquaintance with and some working knowledge of modern computers. History of computers, physical structure of computers, rudiments of programming, documentation, computer languages, impact of computers on society. (Cannot be taken for credit if CSC 100 is taken for credit. This course is not the equivalent of CSC 1100 as a prerequisite for other computer sciences courses.)

(250) **CSC 2050. Topics in Computer Science. (2-3)** Prerequisite: consent of the Department. Topics in computer science selected to supplement the regular course offerings at the 2000-level. (May be repeated for credit as topics vary and with the approval of the Department.)

(211) **CSC 2111. Cobol and File Structures. (3)** Prerequisite: CSC 1100 or equivalent with a grade of C or better. A study of COBOL and its use in file manipulations including structures, sorting, blocks, accessing of files and transaction processing. Both business and non-business uses of file systems will be studied.

(213) **CSC 2113. Procedure-Oriented Programming in PL/1. (3)** Prerequisite: CSC 1100 with a grade of C or better or consent of the Department. A study of the programming language PL/1 and the principles of procedure-oriented programming. Block structure, data elements, stream and record I/o, dynamic program structure, compile time facilities in PL/I.

(214) **CSC 2114. Procedure-Oriented Programming in ALGOL. (3)** Prerequisite: CSC 1100 with a grade of C or better or consent of the Department. Study of the programming language ALGOL and the principles of procedure-oriented programming. Block structure, data elements, record I/O, dynamic progam structure, pointers, strings, and job-related facilities.

(215) **CSC 2115. APL Programming. (3)** Prerequisite: CSC 1100 with a grade of C or better or consent of the department. The study of programming language APL. Datatypes, functions, operations, files, programming style, dynamic stack management.

(223) **CSC 2123. Introduction to Numerical Methods. (3)** Prerequisite: CSC 1100 and MAT 1142. General concepts of scientific computing and their applications to such areas as non-linear equations, numerical integration, spline and polynomial interpolation, and initial value problems.

(240) **CSC 2140. Assembly Language, Machines, Systems. (3)** Prerequisite: CSC 1100 or equivalent with a grade of C or better. General principles of assembly languages and assembly language programming.

(241) **CSC 2141. Introduction to Systems Programming. (3)** Prerequisite: CSC 2140 with a grade of C or better. Basic digital logic components, basic computer organization, advanced assembly language concepts, program segmentation, file control systems, device and interrupt handlers.

(261) **CSC 2161. Information Structures. (3)** Prerequisite: CSC 1100 with a grade of C or better and knowledge of two higher level languages. Stacks, queues arrays, strings, lists, trees, and graphs. Applications to recursion, garbage collection and compactification traversals, accessing of information, design and analysis of algorithms. Not open to students who have received credit for CSC 361.

(275) **CSC 2175. Logic and Algorithms (3)** Prerequisites: CSC 1100 and MAT 1141 or equivalent. An introduction to the propositional calculus, predicate calculus, algorithms, Turing machines, computability and logic design. (Credit not given to students having credit for CSC 273.)

(288) **CSC 2188. Computer History, Literature and Professionalism I. (0)** Prerequisite: at least two computer languages and consent of the Department.

(289) **CSC 2189. Computer History, Literature and Professionalism II. (1)** Prerequisite: completion of CSC 2188 with a grade of AU (Audit). An introduction to searching, assimilating and disseminating historical and technical information in computer science through the study of computer science literature and the written presentation of topics. This is a two-semester sequence with credit awarded only upon successful completion of the second semester (CSC 2189).

Courses for Advanced Undergraduates

(350) **CSC 3050. Topics in Computer Science. (2-3)** Prerequisite: consent of the Department. Topics in computer science at the upper division level. (May be repeated for credit as topics vary and with the approval of the Department.

(315) **CSC 3115. Design and Analysis of Algorithms. (3)** Prerequisite: CSC 2161 with a grade of C or better and junior standing. Tools and techniques for the development of correct algorithms. Structured and modular programming, efficiency and correctness, testing, recursion, complexity and heuristics.

(341) **CSC 3141. Computer Organization. (3)** Prerequisite: junior standing, and CSC 2140 with a grade of C or better. Basic digital components, data representations, machine control flow, accessing, transfer and I/O functions. Introduction to multi-level machines, micro programming concepts, survey of various computer architectures.

(343) **CSC 3143. Advanced Systems Programming. (3)** Prerequisite: CSC 3141. Introduction to multi programming operating systems. Process synchronization and management of memory, devices, and files; performance evaluation.

(360) **CSC 3160. Data Base Design and Implementation. (3)** Prerequisite: CSC 2161 with a grade of C or better. Logical and physical data base organization, data models, design issues, and secondary structure considerations. Emphasis on actual participation in the design and implementation of data bases. Not open to students who have received credit for CSC 260.

(362) **CSC 3162. Data Communications and Distributed Processing. (3)** Prerequisite: CSC 2141 with a grade of C or better and at least two high level computer languages. Interface standards and protocols, hardware standards, common carrier limitations, modems and multipliers, circuit, message and packet switching, datagrams and virtual circuits, error detection, text compression, virtual terminals.

(371) **CSC 3171. Introduction to Sequential Machines, Languages and Automata. (3)** Prerequisite: MAT 2165. Finite-state deterministic systems; models and basic properties of sequential machines; formal grammars; Chomsky classification of languages and machines; limitations of finite automata; pushdown automata.

(375) **CSC 3175. Introduction to Theory of Computation. (3)** Prerequisite: CSC 2175. Turing machines; Church's thesis; unsolvable problems; computational complexity.

(450) **CSC3650. Senior Project. (3)** Prerequisite: senior standing, at least two CSC 31xx courses or consent of the Department. An individual or group project in the teaching, theory or application of computer science under the direction of a faculty member. Projects must be approved by a departmental committee before they are initiated and the results will be reviewed by the committee before a grade is assigned.

(451) **CSC 3651. Senior Project. (3)** Prerequisite: CSC 3650. A continuation of CSC 3650.

(390) **CSC 3690. Seminar. (1-6)** Prerequisite: CSC 3141 or consent of the Department. May be repeated for credit.

(391) **CSC 3691. Seminar. (1-6)** Prerequisite: CSC 3141 or consent of the Department. May be repeated for credit. A continuation of CSC 3690.

(490) **CSC 3699. Senior Seminar. (1)** Prerequisite: senior standing and consent of the Department. Each participant will prepare and present a lecture on a topic in computer science. Emphasis will be on communication of technical information skills as well as the content of presentations.

Courses for Advanced Undergraduates and Graduate Students

(431) **CSC 5131. Computer Simulation. (3) (3G)** Prerequisite: CSC 1100, MAT 3122, junior standing and consent of the Department. Introduction to a simulation language such as DYNAMO or GASP, and simulation methodology. Design of simulation models, discrete and continuous systems, and organization techniques. Selected applications.

COMPUTER SCIENCE/ENGINEERING (CSE)

(386) **CSE 3182. Computer Architecture. (3)** Prerequisites: EE 3181 or permission of the Department. von Neumann architecture; stack processing, pipelining, vector and multi-processing and data flow architecture.

(485) **CSE 4181. Microcomputer Interfacing. (3) (3G)** Prerequisite: EE 2112, CSC 2140 or permission of the Department. Signal conditioning, A/D conversion, noise, transmission line effects, signal processing, D/A conversion and serial/parallel interfaces.

College of Nursing

Dean: Professor Langston
Dean Emeritus: Edith Brocker
A. Sue Kerley Professor of Nursing: Caddell
Professor Emeritus: Vera Smith
Undergraduate Area Heads: Associate Professor Mauldin, Assistant Professor Moore
Graduate Program Coordinator: Professor Repp
Professors: Jernigan, Nicholson, Schlachter
Associate Professors: Andrews, Chase, Clinton, Fray, Head, Mayo
Assistant Professors: Coleman, Curran, Davenport-Cook, Dulski, Edwards, Gordon, Herbert, King, Murphy, Newman, Ruth, Sanders, M. Smith, Stephenson

Purpose. The aim of the College of Nursing is to prepare the nurse for beginning or advanced practice of nursing; to pursue systematic investigation of phenomena within the discipline of nursing; to engage in critical thinking; and to become a productive member of society.

The purpose of the baccalaureate program is to prepare a nurse who is a generalist capable of:

1. Providing nursing care for individuals, families, and groups in a variety of settings using a holistic framework.
2. Functioning as a change agent and a leader in the provision of nursing services.
3. Continuing personal and professional development.
4. Extending and expanding his/her knowledge base beyond the baccalaureate level.

Philosophy. The philosophy of the College of Nursing is derived from, built upon, and is consistent with the philosophy of The University.

The faculty believe that human life has intrinsic worth both as an individual and as a collective experience. The holistic nature of each human being involves complex adaptive and developmental processes, is dynamic, continuous and requires nurturing, socialization and interdependence.

> Health is a dynamic state of being in which the developmental behavior potential of an individual is realized to the fullest extent possible. Each human being possesses various strengths and limitations resulting from interaction of environmental and hereditary factors. The relative dominance of the strengths and limitations determines an individual's place on the health continuum; it determines the person's biological and behavioral integrity, his wholeness. (NURSING - A SOCIAL POLICY STATEMENT, ANA, P.5)

Nursing shares with other disciplines the goal of promoting a positive state of health for society and for each individual within the society. Nursing is the diagnosis and treatment of human responses to actual or potential health problems. As such, the faculty believe that nursing is a human service which is extended on the basis of need rather than privilege. The process of nursing is deliberative, interactive, and scientifically based. The nurse-client relationship is a collaborative one guided by recognition of mutual responsibility and human dignity.

The faculty believe that the minimum preparation for the professional practice of nursing is a baccalaureate education which is built upon a base drawn from the scientific and humanistic disciplines, and emphasizes nursing theory. The University provides opportunity for each student to develop knowledge of self, understanding of the nature of humanity, and competencies relevant to individual and professional goals. The College of Nursing supports the assumption by individual faculty of responsibility for implementing an appropriate service, consultative, or investigative role within the health care system.

The faculty facilitates learning by creating an environment conducive to intellectual inquiry and freedom of expression. Clearly defined and flexible learning goals promote active self-directed participation by students in the educative process. Faculty believe that a major element of the student learning experience is clinical practice within the health care system.

Objectives. The curriculum leading to a Bachelor of Science in Nursing degree is designed to prepare a professional nurse who will demonstrate the ability to:

1. Synthesize knowledge of biological and behavioral sciences and the humanities to the professional practice of nursing.
2. Incorporate life cycle perspectives into nursing practice.
3. Utilize nursing theory and process in promoting, maintaining and restoring optimal health of individuals, families and groups.
4. Implement appropriate nursing roles in supporting the health of individuals, families and groups in a variety of settings.
5. Incorporate knowledge of interpersonal theories to promote therapeutic and collegial relationships in achieving health care goals.
6. Evaluate personal and professional growth.
7. Assume leadership responsibility for evaluating nursing processes and outcomes and by implementing change.
8. Contribute to the quality of nursing practice through critiquing, participating in and utilizing research process.
9. Advance personal knowledge through graduate or continuing professional education.

Study Abroad. The College of Nursing offers a three-credit course in England. The student has the opportunity to study the health care system of Great Britain as well as the educational process for nurses in England. The study time abroad is three weeks in the early summer months.

BSN GENERIC PROGRAM.

Requirements. The Bachelor of Science in Nursing degree is comprised of 120 semester hours credit. The program may be completed in four academic years or eight semesters of full-time study. Sixty-one of these hours are in the Nursing Major. The general education and prerequisite foundation courses comprise 50 semester hours credit. The student selects nine additional hours of electives from general education or nursing.

Nursing and general education courses are arranged so that there is a continual interchange of theory and practice. The curriculum of the College of Nursing proceeds in a series of planned sequential learning experiences that involve the student in the teaching-learning process and permit development of the intellectual processes of inquiry, analysis, synthesis and creativity.

Immunization and Status of Health. Prior to participation in clinical experiences, all students must submit evidence of a physical examination, an acceptable rubella titer or immunization and a tine test.

Challenge Examinations. Challenge examinations in nursing courses are open to any student who is currently enrolled in the College of Nursing and who has had previous formal instruction in the subject area content for which he wishes to challenge for credit. Equivalency credit for nursing courses will be determined on the basis of written validation examinations in each clinical nursing course, and the applicant will be given credit only for those courses in which he attains a grade of *C* or better on the challenge examination. No challenge examination may be repeated. If any attempt at challenge is unsuccessful, the student will be required to enroll in the course for both theory and clinical laboratory experience.

Ten-Year Rule for Natural Science Courses. Credit for natural science courses taken more than 10 years ago will be accepted as elective credit only; it will not satisfy general degree requirements or related course requirements.

Requirements for Progression in the Nursing Program. In order to promote the progression of safe practitioners from one level to the next within the College of Nursing and eventually into the nursing profession, students

1. Are required to have an overall GPA of at least 2.5 and to complete SOC 1101 and 2132, PSY 1101 and 3151, BIO 1110, 1259 and 1273 and CHE 1103 and 1104 in order to enroll in all required junior-level courses except NUR 3102;

2. May have a maximum of four semester hours of D credit in general degree requirements and required prerequisites for the nursing major;

3. Are required to achieve a grade of C or better in all required natural science courses;
4. Must achieve a grade of C or better in each nursing course including at least a C in both the theoretical and the clinical components of the course;
5. Are permitted to repeat a nursing course once and only two nursing courses may be failed during the student's matriculation in the Nursing major. Taking a challenge examination constitutes one attempt at the course. A student who repeats a nursing course and does not achieve at least a C is ineligible to continue enrollment in the College of Nursing.
6. Are required to complete all junior level nursing courses and achieve a GPA of at least 2.0 overall and in the Nursing major in order to enroll in senior level nursing courses.
7. Must achieve at least a 2.0 GPA in the Nursing major to graduate.

CURRICULAR REQUIREMENTS FOR THE BACHELOR OF SCIENCE IN NURSING GENERAL PROGRAM

Students may not take more than 16 hours during a semester without permission of the Dean.

Freshman Year

English 1101	3	English 1102	3
Math 1101	3	Math 1222	3
Psychology 1101	3	Biology 1101	4
Chemistry 1103	4	Chemistry 1104	4
	13		14

Sophomore Year

Biology 1259	4	Biology 1273	4
Psychology 3151	3	Sociology (Family) 2132	3
Sociology 1101	3	*Nursing 1100	3
Humanities	3	Humanities	3
Electives	2	Elective	2
	15		15

Summer: Nursing 3102.....3

Junior Year

Level I		*Level II*	
Nursing 3105	6	Nursing 3106	8
Nursing 3107	2	Nursing 3108	2
Nursing 3109	2	Nursing 3110	2
Nursing 3111	3	Nursing 3112	3
	13		15

Senior Year

Level III		*Level IV*	
Nursing 3205	6	Nursing 3206	6
Nursing 3207	2	Nursing 3208	3
Nursing 3209	2	Nursing 3210	2
Nursing 3211	3	Nursing 3212	3
Elective	2	Elective	2
	15		16

*Human Development Throughout the Life Span — any comparable course will meet this requirement.

TOTAL HOURS REQUIRED FOR DEGREE: 120 semester hours

General Education Foundation	50 (41%)
Electives	9 (8%)
Nursing Major	61 (51%)

PATHWAY OPTION FOR REGISTERED NURSES

The Pathway Option is an upper division program for Registered Nurses which leads to a Bachelor of Science in Nursing degree.

Requirements for Admission. To be eligible for admission to the Pathway Option, applicants must have:

1. current licensure as a registered nurse in the state in which they will have student clinical experience
2. completed UNCC's general degree requirements and related behavioral and natural sciences required of nursing students;
3. an overall 2.5 grade point average;
4. practice liability insurance (included in tuition and fees) to cover student clinical experience;
5. a minimal grade of *C* in required natural science courses;
6. a letter of recommendation from employer;
7. a minimum of one-year work experience occurring within five years prior to enrollment; and
8. completed NUR 1100 or equivalent course in human development throughout the life span.

Course Requirements. The curriculum is designed to build upon the registered nurse's experience, knowledge, needs and goals. Although the overall goals of the curriculum are the same as the generic program, the process of attainment of these goals is different. The curriculum is developed around three major areas: the process of scientific inquiry, the nursing process, the health continuum and nursing roles.

The nursing content of the curriculum can be completed in one calendar year. It consists of four seven-week modules including clinical nursing and two research seminars. Upon successful completion of a comprehensive post-test at the end of the first semester, up to 24 hours of nursing credit may be awarded for prior learning from work, life and educational experiences.

General Degree Requirements and Prerequisites

	Semester Hours
English	6
Humanities	6
Mathematics	6
(College mathematics and statistics)	
Social Science	12
(General and abnormal psychology, general and family sociology)	
Natural Science	16
(general chemistry-8, bacteriology/microbiology-4, anatomy and physiology-4)	

Natural sciences must be completed within 10 years prior to enrollment; elective credit only awarded for courses taken more than 10 years prior to enrollment.

Nursing Course Requirements for the Pathway

Nursing 1100	3
(or equivalent course in human development throughout the life span)	
Nursing 3220	6
Nursing 3230	7
Nursing 3240	7
Nursing 3250	6
Nursing 3191	2
Nursing 3992	2
Credit by Exam up to	24
	54
Electives	17
Total	120

CLEP credit may be applied to general degree requirements and/or electives.

MASTER OF SCIENCE IN NURSING

The program leading to the degree of Master of Science in Nursing is designed to provide nurses with opportunities for the continuing development of professional identity, the establishment of collaborative roles with other professionals and the utilization of the inquiry sciences and advanced knowledge as a basis for improving nursing practice. The program provides opportunities for specialization in clinical areas of nursing practice such as adult health nursing, parent-child nursing, community nursing and mental health nursing as well as participation in a highly individualized functional minor in nursing administration, teaching or as a clinical specialist.

The program of study will focus on the following:

1. Specialization in a clinical area such as adult health nursing, parent-child nursing, community heath nursing, mental health nursing with the emphasis on advanced nursing theory and clinical practice;
2. Preparation for teaching, administration and clinical practice, including emphasis on leadership roles in nursing in relation to the health forces and the social systems in which nursing is practiced;
3. Analysis of governmental policies related to societal and health problems and health care delivery;
4. Utilization of nursing research and theory as a basis for nursing knowledge and practice and completion of a thesis;
5. Provision of the opportunity for student goal attainment based on individual interests in developing advanced professional competencies.

Degree Requirements. The Master of Science in Nursing degree program requires completion of 42-45 semester hours of graduate credit including 36 hours in the Nursing major which are open to graduate students only. Requirements for the program may be completed in three semesters and one summer session of full-time study or spread over a longer period of part-time study.

Quality of Degree Course Work for a Graduate Degree. A student is expected to satisfactorily complete the specified semester hours of approved courses, depending upon his/her individual program, with an overall grade average of 3.0 or better. No more than six hours evaluated as C may be counted toward the minimum hours required for the master's degree.

Policy on Repeating a Graduate Course. A graduate student will be allowed to repeat a maximum of two courses in which the student has been assigned a grade of C, U or N (but not an I). A given course may only be repeated one time. Whenever a course is repeated, no additional hours attempted accrue, and the new grade replaces the previous grading in computing the Grade Point Average and in the assignment of academic credit. The record of the first attempt will remain as part of the student's permanent academic record, and the accumulation of marginal (C) grades will not be lowered by successfully repeating a course.

In addition to the course work, each student must prepare and present a thesis acceptable to the student's advisory committee. A comprehensive examination, either written or oral, is required for completion of the program.

At least 36 hours of graduate credit must be taken in residence. At the time of admission, up to six semester hours of graduate transfer credit may be accepted from another accredited institution upon approval of the student's adviser and the dean of the College of Nursing. Courses accepted as transfer credit are subject to the same time limitation as courses taken in residence.

Course Requirements. Each student must complete a minimum of 42-45 semester hours of graduate credit. Following is a description of the components of the curriculum. Information about individual programs may be obtained from the college.

The Nursing Component. The nursing component represents the major portion of requirements for the master's degree and includes four areas of study: core courses, area of specialization courses, research and thesis courses and functional area courses.

Core Area of Study. The core courses provide an introduction to nursing theory, concept analysis, in-depth study of contemporary health issues and the analysis of societal forces and systems related to the practice of nursing. Required courses are: NUR 6101, 6110 and 6115.

Specialization Area of Study. The specialization courses emphasize the utilization of theoretical bases for nursing practice. The area of specialization will prepare the student for activities in client care, consultation, community activities, and planning policies and change. Required courses by area of specialization are: Adult Health Nursing: NUR 6120 and 6125; Mental Health Nursing; NUR 6130 and 6135; Parent and Child Health Nursing: NUR 6140 and 6145; Community Health Nursing: NUR 6150 and 6155.

Functional Area of Study. The functional area of study focuses primarily on the development of role preparation in the teaching of nursing and the delivery of health services. Required courses by functional area are: Education: EDU 6120, 6476 and 6000; Administration: MBA 6161, 6162 and 6890; Clinical Specialist: BIO 4273 and NUR 6165.

Research and Thesis Component. The thesis or special project demonstrates the capacity for research, originality of thought and facility in organizing data. Required courses are: NUR 6160, 6661 and 6962 or NUR 6895.

The Relevant Component. The relevant component includes cognate courses in nursing, biological, behavioral, social and physical sciences. Elective offerings are selected from a variety of courses by student and faculty adviser to support the program of study.

COURSE DESCRIPTIONS

(Curriculum Implemented Fall 1980)

Courses for Undergraduates

(102) **NUR 1100. Growth and Development. (3)** Relationship of selected environmental and social factors to man's growth and development and the meaning of health and illness to the individual, his family and the community. Health problems and facilities society provides for meeting health needs and solving health problems. Growth and development throughout the life-cycle.

(205) **NUR 2100. Nutrition in Health and Disease. (3)** Prerequisites: two semesters of biology and two semesters of chemistry or permission of the instructor. Ways the body handles food from birth through the life cycle to obtain and utilize nutrients for the metabolic needs of health maintenance, growth and added stresses of pregnancy and disease. Focus on normal nutrition. Social and psychological gatekeepers of good nutrition that include childhood eating habits, fads, cultural values, food processing and merchandising methods.

(490) **NUR 3090. Topics in Nursing. (3)** Prerequisite: consent of the College. Topics to be chosen from the specialties of nursing.

(350) **NUR 3100. Clinical Pathophysiology. (3)** Prerequisites: Chemistry 1103, 1104 (or equivalent); Biology 1259 and 1273 (or equivalent). Internal and external factors which cause loss of system integrity, building on the concepts of stress, adaptation, maladaptation and compensation. Study and application of adaptive mechanisms which serve to maintain relative system integrity within the individual. Alterations in regulatory mechanisms which manifest themselves as pathophysiologic processes and constitute major health problems.

NUR 3102. Introduction to Clinical Skills. (3) Prerequisite: permission of the College and completion of all courses required for entrance into nursing at the junior level. Examination of the principles underlying clinical nursing skills as related to the nursing process with emphasis on attaining competence in performing selected skills as a foundation for the theoretical and clinical content of the nursing major. All practice experience will be in the nursing laboratory.

(305) **NUR 3105. Nursing Process I. (6)** An introductory course for the nursing major. Nursing process methodology is the first priority in learning nursing practice. The scientific base for nursing practice studied using a systematic approach. Each step provides the foundation for the methods and concepts which follow. Ambulatory care settings are used for clinical practice, focusing on health assessment of individuals of all ages.

(306) **NUR 3106. Nursing Process 2. (8)** Concepts introduced in Level I are reinforced. Knowledge, skills and competencies necessary to implement the nursing process are synthesized to culminate in therapeutic nursing behaviors, while caring for clients of all ages in altered states of health. In-patient settings are used for clinical practice.

(307) **NUR 3107. Nursing Roles I. (2)** Introduction to the unique roles and functions of professional nursing including professional roles, research process and legal-ethical aspects. Exploration of the historical influences on the development of the present health care system.

(308) **NUR 3108. Nursing Roles II. (2)** Implementation of the unique roles and functions of professional nursing within the health care system. Use of collaboration, consultation and coordination when interacting with members of the health care team. Theories of management, change and teaching-learning, impact of health care system on impact of illness.

(309) **NUR 3109. Communication Process I. (2)** Communication patterns and factors which influence sending and receiving messages. Role plays, simulation games, videotape critiques and values clarification exercises. Introduction to communication and group theories necessary for therapeutic relationships.

(310) **NUR 3110. Communication Process II. (2)** Skills for assessing mental health status of clients in general nursing practice. Building on theoretical concepts from sociology and psychology, emphasis is placed on internal and external factors which may influence the flienc's ability to adapt to changing health status. Use of the nurse-client relationship and crisis theory in intervention.

(311) **NUR 3111. Adaptive Process I. (3)** Foundation for studying the concept of health. Focus on the individual as a holistic, open system, interdependent upon others in the social system. Normal adaptive processes in relation to predictive, maturational crises. Assessment of individual health status, health behavior, and internal and external influences on health throughout the life cycle. Each student will select a family to follow throughout the nursing major.

(312) **NUR 3112. Adaptive Process II. (3)** Problems related to situational crises of all ages. Basic pathophysiology and effects of altered health states on the individual and family.

(491) **NUR 3191. Research in Nursing I. (2)** Prerequisites: completion of all required Level III courses. Introduction to research in nursing. Reviews and critiques of studies from nursing and related areas and development of a preliminary proposal.

(405) **NUR 3205. Nursing Process III. (6)** Concepts introduced in Levels I and II are reinforced and expanded. Implemention of nursing process with individuals, families and communities experiencing multiple, complex health problems. Acute, long term and other community settings are used for clinical practice.

(406) **NUR 3206. Nursing Process IV. (6)** Concepts introduced in Levels I, II and III are reinforced and expanded. Synthesizes previously acquired knowledge in selected practice settings.

(407) **NUR 3207. Nursing Roles III. (2)** Management theory and teaching-learning theory in client-care situations. Incorporation of knowledge of the socio-political processes into professional behavior. Analysis of the characteristics of the health care system in relation to the health status of clients. The student will develop a nursing research proposal.

(408) **NUR 3208. Nursing Roles IV. (3)** Role theory, socio-political process, research and current trends and issues in nursing. Incorporation of knowledge of the socio-political processes into professional behavior. Analysis of the characteristics of the health care system in relation to the health status of clients. The student will replicate a simple nursing research project.

(409) **NUR 3209. Communication Process III. (2)** Continuation of Communication Process 2. Utilizes nurse-client relationship in intervening with clients who have problematic behavior patterns. Mental health disorders and individual, group and family therapies.

(410) **NUR 3210. Communication Process IV. (2)** Use of communication skills in a variety of health care situations. Communication skills for the nurse in the leadership position, both in the nursing profession and as a member of the community.

(411) **NUR 3211. Adaptive Process III. (3)** Study of adaptive processes is extended to include multiple, complex problems related to situational crises affecting clients of all ages. Pathophysiology and effects of altered states of health on individuals, families, the community and the health care system.

(412) **NUR 3212. Adaptive Process IV. (3)** Concepts related to health are expanded to include changing social needs, values, health problems and issues. Synthesis of knowledge of adaptive processes through nursing management of clients at varying points on the health-illness continuum. Each student will evaluate his/her impact on the health status of the family followed since Level I.

(492) **NUR 3992. Research in Nursing II. (2)** Prerequisite: NUR 3192. Study a nursing problem using the research method.

(490) **NUR 3090. Topics in Nursing. (3)** Prerequisite: consent of the College. Topics to be chosen from the specialties of nursing.

(491) **NUR 3191. Research in Nursing I. (2)** Prerequisites: completion of all required Level III courses. Introduction to research in nursing and related areas and development of a preliminary proposal.

(320) **NUR 3220. Trends and Issues in Nursing Practice. (6)** Prerequisite: completion of required general degree courses and related social and physical sciences and permission of the College of Nursing. Corequisite or prerequisite: NUR 1110. Examines those historical, demographic, social and educational changes influencing the professional status of nursing, analysis of nursing roles including the legal, ethical and theoretical perspectives of these roles. Skills necessary to implement the nursing process are learned through seminar, clinical practice and self-directed study.

(330) **NUR 3230. Nursing Process—Health Assessment. (7)** Prerequisite: satisfactory completion of NUR 3220. Health and factors that influence health. Nursing assessment skills including physical and psychosocial assessment are utilized to determine the health status of selected individuals. Students define specific learning objectives, select the setting for clinical application and negotiate with a preceptor and the instructors for a learning contract.

(420) **NUR 3240. Nursing Process in Family and Community Health Settings. (7)** Prerequisite: NUR 3230. Knowledge of crisis intervention, community health theory, health care systems and client nursing regimens. Independent study, seminars and clinical practice in the community.

(430) **NUR 3250. Leadership Roles in Nursing. (6)** Prerequisite: NUR 3240. Skills in critical thinking to evaluate organizations and systems and their influence on nursing practice. Application of scientific problem solving method and change theory when appropriate leadership styles are identified and assessed. The concept of learning as a lifelong process is reinforced. Seminars, independent study and clinical practice.

(492) **NUR 3992. Research in Nursing II. (2)** Prerequisite: NUR 3191. Study of a nursing problem using the research method.

Courses for Graduate Students Only

Additional courses may be available. Information may be obtained from the College of Nursing.

(690) **NUR 6090. Selected Topics in Nursing. (3G)** Prerequisite: Permission of the instructor. Topics to be chosen from the specialties of nursing. May be repeated for credit as topics vary. No more than six hours in NUR 6090 and 6895 may be counted toward degree requirements.

(601) **NUR 6101. Nursing Theory. (4G)** Analysis of various theories underlying nursing practice with emphasis on assisting the learner to utilize theory analysis as a basis for developing nursing practice, education or research.

(610) **NUR 6110. Perspectives in Nursing. (3G)** Analysis of the societal forces, issues and trends having an impact on nursing and the health fields including a critical examination of strategies which accelerate or impede the change process.

(615) **NUR 6115. Health Planning in the Health Care System. (3G)** Contributions of the nursing profession in health care planning including analysis of the implications of federal, state and local legislation on health and nursing and consideration of roles and participation of nursing in political and organizational decisions involving health care.

(620) **NUR 6120. Adult Health Nursing I. (4G)** Examination of scientific data relevant to adult health and illness with emphasis on the utilization of multi-disciplinary theory in the assessment and implementation of nursing practice. Autonomous nurse behavior in response to health-illness events is stressed.

(625) **NUR 6125. Adult Health Nursing II. (4G)** Prerequisite: NUR 6120. Continuation of NUR 6120.

(630) **NUR 6130. Mental Health Nursing I. (4G)** Examination and application of the therapeutic process of mental health nursing with emphasis on application of theories from psychiatric, behavioral, cultural sciences and nursing to select clinical experiences. Theoretical seminar, clinical conference, clinical experience and supervision provide opportunities for development of the roles of the nurse as a group leader and therapist.

(635) **NUR 6135. Mental Health Nursing II. (4G)** Prerequisite: NUR 6130. Continuation of NUR 6130.

(640) **NUR 6140. Parent and Child Health Nursing I. (4G)** Assessment and management of clients of childbearing and childrearing families focusing on the theoretical concepts of competency in parenting, family development, nurturing and human sexuality with emphasis on the development and behavior of children as biopsychosocial beings in the context of the illness-wellness continuum.

(645) **NUR 6145. Parent and Child Health Nursing II. (4G)** Prerequisite: NUR 6140. Continuation of NUR 6140.

(650) **NUR 6150. Community Health Nursing I. (4G)** Epidemiological theory and community relations as the major emphasis in planning and promotion of comprehensive health care of clients, families and community in clinical settings.

(655) **NUR 6155. Community Health Nursing II. (3G)** Prerequisite: NUR 6150. Continuation of NUR 6150.

(660) **NUR 6160. Research Process in Nursing. (3G)** Application of inquiry methods to nursing problems with emphasis on identifying systematic observation and critical analysis of research methods applicable to nursing problems. Submission of an approved researchable problem in nursing.

(665) **NUR 6165. Health Assessment. (3-5G)** Prerequisite: BIO 4355. Development of additional proficiency in the basics of organized history taking and systematic physical examinations with emphasis on the recognition and identification of normal physical findings and including development of skills in recognition of grossly abnormal findings and relation of these findings to specific physiologic or pathologic diagnoses.

(661) **NUR 6661. Research Seminar. (3G)** Prerequisite: NUR 6160. Application of the research process in the design, conduction, analysis and writing of nursing research. A written report and submission of report for publication is expected of the student.

(695) **NUR 6895. Independent Study. (3G)** Guided individual study in topics or issues related to nursing arranged with a faculty advisor. May be repeated for credit. No more than six hours in NUR 6090 and 6895 may be counted toward degree requirements.

(662) **NUR 6962. Thesis. (3G)** Prerequisite: NUR 6661. Production of a piece of nursing research which demonstrates contribution to professional knowledge by systematic investigation.

Special Programs

Afro-American and African Studies

The Afro-American and African Studies program is designed to enable all University students to come to an awareness of Black people, who they are, where they come from, where they are going and why. It is open to all undergraduate students either as a major leading to the B.A. degree or as elective courses complementary to their major program. (See pages 86-89 for courses and requirements.)

American Studies

The American Studies emphasis and minor are open to all undergraduate students. They are intended to allow students to focus strongly on various aspects of the culture of the United States while also gaining further variety from other facets of the curriculum. (See pages 90-91 of this catalog for courses and requirements.)

Charlotte Area Educational Consortium

Full-time undergraduate students may enroll in courses *not offered at UNCC* which are offered at other participating institutions in the Charlotte Area Educational Consortium without paying additional tuition and fees. The courses appear on the student's UNCC transcript and are computed in his/her grade point average. Members of the consortium are: Barber-Scotia College, Belmont Abbey College, Central Piedmont Community College, Davidson College, Gaston College, Johnson C. Smith University, Queens College, Sacred Heart College, UNCC, Wingate College, Winthrop College, and York Technical College. (See page 61 of this catalog for registration procedures.

English Language Training Institute

The English Language Training Institute (ELTI) provides intensive English instruction for international students planning to attend American universities or colleges and for individuals pursuing professional training in the United States. ELTI holds four sessions per year — fall, winter, spring, and summer — and offers four language proficiency levels: Basic, Intermediate, Advanced, and Academic Preparation. Class size is limited to 15 students, and students attend classes 20 hours per week. Exceptional students in the Academic Preparation level may take one course which carries up to three academic credits in The University.

ELTI also offers the Summer Institute for International Teachers of English. This program provides international teachers with intensive training in English as a Second Language methodology. In addition to course work, the Summer Institute emphasizes orientation to American culture through social events, trips, and other activities.

For more information about the English Language Training Institute or the Summer Institute of International Teachers, contact the ELTI Program Coordinator at the Center for International Studies.

Exchange Programs

Students may complete a semester or academic year of study toward the baccalaureate degree at selected colleges and universities in the United States and foreign countries through the University's participation in the National Student Exchange Program and the International Student Exchange Program.

National Student Exchange Program. The National Student Exchange Program offers a new kind of educational opportunity for sophomores and juniors at UNCC. Students can exchange for up to a year of study at one of over 55 colleges and universities throughout the United States through simplified admission processes, assurance of transferability and minimum cost. In this way,

students are able to take advantage of areas of academic specialization and strength at other universities while exploring unique, cultural, geographical and social experiences normally not available to them. Through these experiences students begin to understand, often for the first time, that vastly different learning styles, lifestyles and values may develop from varied academic and geographical settings.

For more information, contact the National Student Exchange coordinator in the Bonnie E. Cone University Center.

International Student Exchange Program. UNCC is one of approximately 80 U.S. institutions of higher education which are members of the International Student Exchange Program. This program permits the UNCC student to exchange with students from Africa, Asia, Australia, Canada, Europe and Latin America. The UNCC students pay their regular tuition, fees, room and board at UNCC and exchange places for the year with students from institutions outside the United States who have similarly covered their cost of tuition, fees, room and board. The student is registered at the foreign institution, taking the same courses, having the same assignments and participating in the same activities as all other students at that institution. This program permits the student to be exposed daily to a different set of cultural values, to new ideas and new world views. ISEP exchanges are small in scale, with only a few students going to each foreign institution. Information regarding the ISEP exchange may be obtained from the Center for International Studies.

Cooperative Education and Experiential Learning Programs

Opportunities are available for both undergraduate and graduate students to receive course and/or degree credit for faculty supervised experiences in public and private agencies within the community. These opportunities are offered through various types of experiential learning programs including clinicals; cooperative education, internships, practica and service-learning internships. Course descriptions pertaining to these programs are included in the courses of study of the offering department or college.

Clinicals. Experiential learning or clinical experiences are an integral part of many of the courses taught in the College of Nursing as well as the College of Education and Allied Professions. They are designed to provide students with opportunities to develop professional competencies and put theory into practice as they progress through their program of study.

Cooperative Education. Cooperative Education is a year-around study-work plan of education in which students alternate periods of attendance at the University with periods of employment in jobs related to their major interest. This type of program has been used succesfully for many years by colleges and universities throughout the United States. The program is designed to provide practical experience under conditions that the University cannot duplicate.

The work assignments are usually for a 40-hour week for a semester and are paid by the employer at a rate appropriate to the student's development. Some students find that they can meet most or all of their college costs with income from their Co-op assignments. The work assignments are monitored by both the employer and a faculty adviser to assure that they relate to and progress as the student's education progresses. Students usually stay with the same employer but this is not necessary. Many students find the Co-op experience an aid in obtaining their first job — very often with the company or agency with which they had a Co-op assignment. Academic credit may or may not be granted for Co-op work. While working, the Co-op student is enrolled in the University, considered a full-time student, and eligible for student activities.

The Co-op office works with the faculty of the participating colleges to administer the program. Academic requirements and supervision are provided by the student's college and these vary with the college. The Co-op office works with employers and approved Co-op students to find suitable work opportunities. Co-op students are required to have better grade averages than the University requires for all students.

The College of Engineering has an established cooperative education program. Additional departments and colleges are considering establishment of Co-op programs. For further information, inquiries can be made of the various colleges, the Experiential Learning Office or the Engineering Co-op Office.

Internships. Students may receive academic credit for semester-long, supervised work experiences in public or private community organizations. The amount of credit is determined by the nature of the internship assignment and the number of hours worked each week.

Practica. Psychology majors have opportunities to receive academic credit for working in practical settings related to psychology. Each practicum is conducted under the supervision of a faculty member and an agency representative.

Service-Learning Internships. Students may participate in internship experiences designed specifically to serve the needs of the community while providing learning opportunities for students.

The *Internship Program in Community Education and Services* is designed as an area-wide program with academic credit. The overall objectives of the service-learning program are:

—To identify relationships between the student's academic program and the problems and prospects of modern urban communities.

—To enable students to become involved in solving problems of the urban community.

—To provide manpower for governmental and service agencies in local metropolitan communities.

—To encourage youth to consider careers and/or citizen leadership in urban administration and service.

—To establish a closer relationship between institutions of higher education and the Charlotte area communities by making the resources of the University more accessible to the community and by providing a basis for keeping curriculum, teaching and research relevant to the needs of the community and society.

Interns may receive from one to 15 semester hours credit, with grading on a *Pass/No Credit* basis, for successful completion of A&S 3400 (Non-Residential Studies). For additional information about this opportunity, contact the Office of the Dean of the College of Arts and Sciences. Also, see Arts and Sciences course descriptions for A&S 3400.)

Honors Program

Honors courses and programs were established at UNCC to permit creative, imaginative and exceptional students to develop their academic potential fully. Various opportunities permit students to tailor a program of honors work uniquely suited to their interests and to the requirements of their academic specialty. Students from every discipline and college are involved in some type of honors work and all honors offerings provide opportunities for close interactions with faculty and other honors students.

Involvement in honors work at UNCC may take a variety of forms. There are departmental honors programs typically completed by majors in the Departments of Biology, Chemistry, English, History, Mathematics, Performing Arts, Psychology, and Visual Arts. Additionally, the Departments of English, mathematics, Political Science, Psychology and Sociology offer special honors courses that are open to interested students from all colleges and academic specialties. Finally, the University Interdisciplinary Honors Program provides an opportunity for students to do honors work that cuts across a broad variety of departments and areas, beginning in the freshman year. Students may be involved in honors work simply by taking an occasional course, or they may complete the Interdisciplinary Program, a department program, or both.

HONORS CERTIFICATION: UNIVERSITY REQUIREMENTS

Successful completion of any honors course noted on a student's academic record and completion of an honors program is inscribed on the diploma and announced at graduation as well.

To qualify for graduation with honors recognition in a specific program, a student is required to (a) have at least a 3.50 GPA for all honors courses completed in the program; (b) complete an acceptable honors thesis; (c) receive at least three hours of "A" for their honors thesis research; (d) be recommended by the program's Honors Committee for graduation with honors and (e) complete any additional requirements specified for the program.

The Interdisciplinary Honors Program. The Interdisciplinary Honors Program was established in 1983 to provide students from all disciplines with a broad liberal arts framework to complement their academic specialties, as well as to provide special opportunities for intellectual and personal growth.

Admission. The Interdisciplinary Honors Program is open to students from all colleges and majors in The University. High school seniors admitted to UNCC are invited to participate based on high school performance and SAT scores. Other students who achieve a GPA of 3.50 or greater will generally be asked to participate in the program. Transfer and other students not contacted may become involved in the program with the approval of the Interdisciplinary Honors Coordinator.

Courses. Freshman and upper level interdisciplinary honors courses are offered. The Freshman Interdisciplinary Honors Seminar is a two-semester course sequence team taught by faculty members from different disciplines on a given theme or topic. For example, a Psychology and an English professor might each present their discipline's view on creative thought. Enrollment is limited to 15 students. Additionally, upper level special topics courses and an Interdisciplinary Forum are offered. A description of the courses appears in the Arts and Sciences section of this catalog under Interdisciplinary Honors Program.

Certification Requirements. Students may take courses in the Interdisciplinary Honors Program without completing the requirements for certification. Students who take an occasional course or just complete the freshman seminars will have this noted on the transcript. To qualify for graduation with Interdisciplinary Honors, students must meet the following requirements (in addition to those specified for all programs): (a) completion of 15 hours of honors course work across a minimum of three disciplines. At least three of these 15 hours must consist of Arts and Sciences Honors course work, excluding the thesis. The additional hours are completed by taking courses in departments offering honors course work to non-majors. Departments presently offering courses include English, Mathematics, Psychology, Political Science and Sociology. (b) Completion of an honors thesis in an area of study which interests them that has been approved by the Interdisciplinary Honors Committee; and (c) The Interdisciplinary Honors Committee must recommend the student for the designation.

Special Privileges and Activities. Participants in the Interdisciplinary Honors Program have access to a student lounge and receive invitations to participate in many special activities such as luncheons with Chancellor Fretwell and local business and media figures as well as trips to Spirit Square, the Charlotte Opera and Symphony, and Discovery Place.

Completion of Interdisciplinary and Department Programs. Students may complete both the Interdisciplinary and a department honors program. If a student elects this option, the Interdisciplinary Honors Committee will permit three hours of honors course work (excluding the thesis) to be applied to both interdisciplinary and department honors. One honors thesis may count toward both designations.

For More Information. Contact Dr. Denise C. Park, Coordinator, Interdisciplinary Honors Program. Telephone: (704) 597-4740.

Biology Honors Program. This program is intended primarily for Biology majors. It is a research-oriented program with no provisions for the participation of non-majors.

Admission. Students are invited to participate in the program during their junior year by the department chairman, based on the advice of the department honors committee. There are a number of requirements regarding course work completed and grade point attained which a student must meet before he or she may be invited to participate.

Courses. A student may take Honors Research I and Honors Research II and complete an honors thesis under the direction of an honors advisor while enrolled in this two semester sequence.

Certification Requirements. Students must complete the two semester research course sequence described above and have a cumulative grade point average of 3.20 or greater at graduation.

For More Information. Contact Dr. Roger Trumbore, Chairperson, Department of Biology. Telephone: (704) 597-2318.

Chemistry Honors Program. This program is intended primarily for Chemistry majors. It is a research-oriented program with no provisions for the participation of non-majors.

Admission. Students or faculty may initiate participation in the program, usually at the beginning or halfway through the junior year.

Courses. Independent research, seminars and laboratory courses are available.

Certification Requirements. To obtain a degree with Honors in Chemistry, a student must successfully complete two semesters of independent research at the Honors level, two semesters of the senior seminar at the Honors level and at least one specified laboratory course at the Honors level, all with grades of "B" or better.

For More Information. Contact Dr. Robert Gibson, Chairperson, Department of Chemistry. Telephone: (704) 597-4765.

English Honors Program. The English Honors Program offers a program of study for English majors and courses for non-majors in the Interdisciplinary Honors program or simply pursuing an interest in English honors work.

Admission. Admission into the program or a course requires the approval of the English Department Honors Committee.

Courses. Junior level honors topics courses are offered which are appropriate for nonmajors and majors who meet the course prerequisites. A Senior Honors Seminar and Senior Honors Colloquium (which includes a special project equivalent to a thesis) are offered primarily for majors who wish to complete the program.

Certification Requirements. To graduate with honors in English, a student must complete English 2111 and 2112, Junior Honors Topics I and II, and the Senior Honors Seminar and Senior Honors Colloquium.

For More Information. Contact Dr. Fred Smith, Chairperson, Department of English. Telephone: (704) 597-2300.

History Honors Program. The History Honors Program is focused primarily on courses for majors and requires completion of history honors courses and a thesis.

Admission. Students or faculty may initiate applications for admission to the History Honors Program. Admission into the program is not final until both the Department Honors Committee and the University Honors Council approve the student for candidacy.

Courses. Honors sections of various courses are offered in addition to the honors thesis course.

Certification Requirements. To successfully complete the History Honors Program a student must complete three history honors courses—one in historical methods, one in research design and the honors thesis course. Students must have a 3.5 GPA in all history honors courses completed and an overall GPA of 3.0.

For More Information. Contact Dr. Ed Perzel, Chairperson, Department of History. Telephone: (704) 597-4635.

Mathematics Honors Program. The honors program in Mathematics is designed primarily for majors, encouraging flexibility and independent study.

Admission. Students may request entrance into the program at any time and will be evaluated by the Honors Committee.

Courses. A Junior Honors Seminar and a Senior Honors Tutorial are offered, both of which may be repeated for credit.

Certification Requirements. Students must participate in at least two semesters of the Senior Honors Tutorial, complete a thesis and be recommended by the Mathematics Honors Committee.

For More Information. Contact the Chairperson, Department of Mathematics, Telephone: (704) 597-4555.

Performing Arts Honors Program. The honors program in Performing Arts was developed primarily for majors and is based on individual honors projects. The department does plan to expand honors offering and include courses for non-majors.

Admission. Students must have completed a number of course prerequisites and at least 60 semester hours of course work and have an overall GPA of 3.00 and a 3.50 in Performing Arts course work. Additionally, honors students must be recommended by the Department Honors Committee to participate in the program.

Courses. The courses offered are "Individual Project, Honors" at both the junior and senior levels.

Certification Requirements. A student must complete 21 hours of honors individual projects, with at least nine hours of work at the senior inidividual level and achieve an overall GPA of 3.50 in all honors course work completed in the department.

For More Information. Contact Professor Jack Beasley, Chairperson, Department of Performing Arts. Telephone: (704) 597-2475.

Psychology Honors Program. The Psychology Honors Program offers a number of courses open to nonmajors who meet the prerequisites as well as a program of honors study for majors.

Admission. Admission to honors course work is by permission of the Psychology Honors Committee for both majors and nonmajors. A minimum GPA of 3.00 is required for admission to courses.

Courses. The Psychology Department offers honors sections of many of its courses, including General Psychology, Child Psychology, Abnormal Psychology and Research Methods. A two-semester honors individual research sequence is offered for students involved in thesis work.

Certification Requirements. To graduate with honors in Psychology, a student must complete nine hours of psychology honors courses and a six-hour honors thesis project.

For More Information. Contact the Chairperson, Department of Psychology. Telephone: (704) 597-4731.

Visual Arts Honors Program. The honors program in visual arts is structured similarly to the Performing Arts program. All requirements and admission criteria are identical to those described in the Performing Arts section.

For More Information. Contact Professor Donald Byrum, Chairperson, Visual Arts Department. Telephone: (704) 597-4455.

DEPARTMENTS WITH HONORS COURSES

Mathematics. The Mathematics Department offers a two-semester Honors Calculus course. Admission may be initiated by the Department or by students. For more information, contact the Chairperson, Department of Mathematics. Telephone: (704) 597-4555.

Political Science. The Department of Political Science offers an introductory honors course open to honors students from all disciplines. The course is entitled "Honors Seminar in Political Science" and investigates basic issues in the discipline. There are no course prerequisites for enrollment. For more information, contact Dr. Robert Mundt, Chairperson, Department of Political Science. Telephone: (704) 597-2574.

Sociology. The Department of Sociology and Anthropology offers an honors section of "Introductory Sociology." The course is designed to introduce honors students to the basic ideas and methods of sociology. There are no course prerequisites for enrollment. Admission may be initiated by interested students or the Department. For more information, contact Dr. George Rent, Chairperson, Department of Sociology and Anthropology. Telephone: (704) 597-2252.

Inter-Institutional Registration

Full-time undergraduate and graduate students may enroll in courses *not offered at UNCC* which are offered at other participating institutions without paying additional tuition and fees. The courses appear on the student's UNCC transcript and are computed in his/her quality point average. Members of the inter-institutional registration program are: University of North Carolina at Greensboro, North Carolina State University, University of North Carolina at Chapel Hill and Duke University. (See page 62 of this catalog for registration procedures.)

International Studies

Concentration in International Studies. The Center for International Studies, by offering a concentration, allows students to pursue an interdisciplinary and comparative study of foreign cultures and societies while they fulfill the academic requirements for a major in one of the approved University degree programs.

A concentration in International Studies permits a wide variety of choice in subject matter and encourages course work in modern foreign languages, humanities, social sciences and international economics and business. Carefully selected programs should be designed to provide students with cultural and intellectual enrichment for more rewarding lives in an increasingly interdependent world. Such programs should also be of particular value to those with career objectives in government, business, trade, finance, law, health and environmental programs, international agencies such as the United Nations, private religious and humanitarian service organizations, journalism, teaching, research and military service.

Students seeking a concentration in International Studies must fulfill general University degree requirements and the requirements for a selected major. In addition, students are expected to complete a minimum of eight courses in at least three departments outside their major.

A program of study fulfilling this option may be viewed from a variety of perspectives: topically, e.g., world population, poverty, violence, and war and peace futures; or geographically, e.g., Soviet Union, Eastern Europe, Africa, Asia and Latin America; or chronologically, e.g., ancient, medieval and modern. Students majoring in the following disciplines may earn a concentration in international studies.

Accounting
Anthropology
Architecture
Biology
Business Administration
Chemistry
Civil Engineering
Criminal Justice
Earth Sciences
Economics
Education
Electrical Engineering
Engineering Technology
English
French
Geography
German
History
Human Development and Learning
Mathematics
Mechanical Engineering and Engineering Science
Nursing
Philosophy
Physics
Political Science
Psychology
Religious Studies
Spanish

The International Studies program also coordinates a variety of activities, events, travel options and other opportunities of international scope in order that students may participate in a broad range of experience.

Students seeking certification in International Studies shall plan programs with department advisers and the director of International Studies. The director will assist in the planning of a concentration and review and approve all certification in International Studies. Transcripts of students satisfactorily completing their program will bear the statement, "Concentration in International Studies." To meet the requirements for the concentration, a student also must have at least a 2.0 average in the courses offered for it.

Lists of courses approved for credit toward a concentration in International Studies are available in the departments listed above or from the program director.

Travel and Study Abroad. The Center for International Studies offers UNCC students the opportunity to travel and study abroad either for a year, semester or summer term. Programs during the summer are arranged in a variety of countries each year. In cooperation with the Department of Foreign Languages, intensive summer language programs are offered in Canada, Germany and Mexico. A student should contact the Center for International Studies no later than March 30 to be considered for a summer travel/study program.

Students may study for a semester or an academic year in Copenhagen, Denmark, through Denmark's International Study Program. Approximately 35 courses are offered in liberal arts with

specializations in Architecture, Social Welfare and Business Administration. Students of sophomore or junior standing are preferred and grade point average of 2.5 is required. Although no scholarships are available for this program, many students who are receiving financial aid during a regular academic year will be eligible to continue receiving aid while participating in this program. Students may study for the fall semester in India. This program specializes in the humanities.

For more information on travel/study, contact the Center for International Studies.

Campus Programming. A series of annual and one-time events is sponsored independently and in cooperation with other departments and agencies. They include:

1. Annual International Festival
2. International Film Festival
3. International Club
4. International Student Vacation/Study Programs and Summer Institutes
5. A variety of international programs relevant to international student concerns. Examples include lectures, Model United Nations, and food day celebrations.

ROTC Programs

Air Force ROTC. Students who desire the opportunity to serve as commissioned officers in the Air Force may elect to participate in the Air Force Reserve Officers' Training Corps (ROTC) Program as part of their academic program.

This program is divided into two phases, the two-year General Military Course (GMC) for freshmen and sophomores, and the two-year Professional Officer Course (POC) for juniors and seniors. Selection for the POC takes place during the sophomore year for cadets who have demonstrated sound academic and leadership qualities. Qualified juniors and seniors may participate in the Flight Instruction Program (FIP) during their last two years of college. There is no military commitment for students who take only the two-year GMC.

All students in the last two years of AFROTC receive a monthly tax free allowance of $100. ROTC textbooks and uniforms are provided at no cost. Students attending summer field training receive travel payment and a stipend. Air Force ROTC also offers two, three and four year scholarships which are awarded on a competitive basis. These scholarships pay full tuition, fees, books and a monthly tax free allowance of $100. High school seniors should consult their high school counselors or HQAFROTC, Maxwell AFB, Alabama for application forms.

Graduate students are eligible to participate in AFROTC and to compete for scholarships.

For more information, see pages 276-278.

Army ROTC. Students at the University of North Carolina at Charlotte may elect to participate in the Army Reserve Officers' Training Corps (ROTC) Program as a part of their academic program. Students successfully completing the military science curriculum will be commissioned second lieutenants in the Regular Army, Army Reserve or National Guard.

Army ROTC is a four-year program consisting of the Basic Course (freshman and sophomore years) and the Advanced Course (junior and senior years). No military commitment is incurred from participation in the Basic Course.

Eligibility for admission into the Advanced Course is on the basis of demonstrated officer potential and a physical examination. Honorably discharged veterans and students with a JROTC background may be eligible for placement into the Advanced Course provided they are otherwise fully qualified. Transfer students from two-year colleges may also qualify for direct entry into the Advanced Course by participation in summer training. Advanced course students attend a paid six-week summer camp.

All students enrolled in the Advanced Course receive a tax-free subsistence allowance of $100 per month. One, two and three-year scholarships are awarded on a competitive basis. Scholarships pay the full cost of tuition, textbooks and lab fees as well as the monthly subsistence allowance. High school students should consult their high school counselors about application forms.

For more information, see pages 279-280.

Venture Program

Venture recognizes the natural environment as a means for developing initiative, creativity, physical health, and a sensitivity to the environment and other people. The Venture program is designed to facilitate individual growth through physical challenge, group interaction and feedback and personal reflection. It offers a variety of non-credit courses, workshops and seminars that utilize outdoor settings to provide opportunities for active, experiential learning.

Venture also offers courses each semester and during the summer sessions for academic credit. Outdoor, natural environments are utilized to present a series of progressively difficult problems or challenges. While course settings and activities may vary by season and safety considerations, the basic format of each course is similar. Enrollment is limited to ensure full participation and to ease our environmental impact. Through active experience, group debriefings and personal reflections, students are encouraged to examine lifestyles and values while developing a greater sensitivity to the needs of others. Contact the Department of Health and Physical Education for additional information.

Women's Studies

The Women's Studies Program is designed to meet the needs of women and men for an educational program which recognizes the equal value of women's experience and contribution to humanity. It approaches education from an interdisciplinary, multi-cultural perspective. Since the goals of UNCC women are often equally academic, professional and personal, Women's Studies offers a variety of programs and assists students to identify course offerings throughout the University which are relevant for Women's Studies. See page 219 of this catalog for courses and requirements for the concentration and minor.

Preparation for Professional Schools

Students may begin preparation at the University of North Carolina at Charlotte for a number of professional careers. Depending upon the professional school's requirements, the student may wish to take a degree at the University of North Carolina at Charlotte or to transfer after one, two or three years.

Preparation for the following programs is offered: chemical engineering, dentistry, forest resources, journalism, law, medical technology, medicine, optometry, pharmacy, social work and veterinary medicine.

The student who plans to enter a professional school is advised to plan his/her program so that general requirements for the bachelor of arts or bachelor of science degree are met in addition to the requirements for the professional program being considered. The student planning to attend a professional school should inform his/her adviser of his/her plans. The student should become familiar with the requirements of the school which he/she plans to attend.

Chemical Engineering

Students seeking a program in chemical engineering should consult the Department of Chemistry for advice concerning available options. However, those students desiring to obtain the Bachelor of Science in Chemical Engineering degree may do so by transferring to North Carolina State University after spending two years at the University of North Carolina at Charlotte. *To be eligible for such transfer, the student must meet the admissions requirements for transfer at North Carolina State University.* Normally, after transfer an additional two to two and one-half years will be required for the degree.

The following courses are ones which most closely resemble courses suggested for chemical engineering students at North Carolina State University.

First Year

Chemistry 1101, 1101L, 1102, 1102L
Engineering 1100
English 1101 and 1102
Mathematics 1141, 1142
Physics 2221, 2221L
Mechanical Engineering 1102
Physical Education (two semesters)
*Social Science and Humanities (two semesters)

**A one-semester course in each of the following areas is required: history, economics, English literature.*

Second Year

Chemistry 2131, 2131L, 2132, 2132L
Electrical Engineering 2161, 2162
Mathematics 2141, 2171
Physical Education (two semesters)
Physics 2231, 2231L
*Social Science and Humanities (one semester)

Dentistry and Medicine

The composite requirements for entrance to most medical and dental schools in North Carolina, South Carolina, Georgia, Tennessee and Virginia are as follows:

Biology ..... 8 hours
General Chemistry ..... 8 hours
Organic Chemistry ..... 8 hours
(Some schools require additional chemistry)
(Required by half the schools surveyed)
Physics ..... 8 hours
English ..... 6 hours
Foreign Language ..... 9-12 hours
(North and South Carolina only)

Pre-Med Committee. The UNCC Pre-Med Committee consists of faculty members from throughout the University and serves as the main advisory and recommending body for UNCC students seeking entrance to health professional careers and education. Students working toward entrance in health professional schools are advised to work closely with this committee throughout their study at UNCC. Contact the Office of Academic Affairs for the name of the committee chairperson.

Forest Resources

At UNCC students may take the first two years of a program leading to a bachelor's degree in forestry or recreation from North Carolina State University in Raleigh. To be eligible for transfer the student must meet the admissions requirements for transfer to North Carolina State University. It is suggested that pre-forestry students take Biology 2111, 2112, 2041 and 4144; Chemistry 1101, 1102; Economics 2101, 2102; English 1101, 1102; Mathematics 1103, 1221, 1141, 1142; Physics 1101, 1102; physical education — four hours; and social studies or humanities — six hours. Students enrolling in recreation and park administration may substitute Mathematics 1120, 1221 for 1141, 1142 and are not required to take physics.

Journalism

A number of institutions accept graduate students in journalism with the background of a liberal arts degree. Other institutions accept students transferring to an undergraduate program at the junior year with a liberal arts background.

Law

The University suggests that the student planning to enter law school have an understanding of the value of English literature and composition, American history, psychology, logic and ethics, political science, economics, government, accounting, mathematics, sociology, Latin and modern languages and criminal justice. Preparation should include comprehension and expression in words, critical understanding of human institutions and values and creative power in thinking. Thus, any of several majors with wisely selected electives might provide the broad educational background needed.

Pre-Law Committee. The UNCC Pre-law Committee comprises faculty and staff members from throughout the University and is established to assist in advising students who are planning to seek admission to law school following graduation from UNCC and to provide liaison with and assist pre-law students to meet local attorneys. Students working toward entrance into law schools and the legal profession are advised to work closely with this committee. Contact the Office of Academic Affairs for the name of the committee chairperson.

Medical Technology

The University, through affiliation with several schools of medical technology, offers programs leading to baccalaureate degrees in biology and chemistry, with training in medical technology.

**A one-semester course in each of the following areas is required: history, economics, English literature.*

Students interested in this four-year program are advised to check the more detailed listing under the individual departments and to consult with the appropriate adviser in the Department of Biology or Chemistry.

Optometry

Schools of optometry tend to require a minimum of three years of undergraduate study, the first two of which are similar to the following two-year program listed for pharmacy. Advising for students interested in pre-optometry preparation is available in the Department of Physics.

Pharmacy

Students planning to seek a Bachelor of Science in Pharmacy degree may spend either one or two years at the University of North Carolina at Charlotte. One year is recommended for students transferring to a four-year pharmacy school; two years are recommended for students transferring to a three-year pharmacy school such as the University of North Carolina at Chapel Hill.

The following courses are equivalent to those required for transfer into the pharmacy school at UNC Chapel Hill.

English 1101 and 1102
Mathematics 1103, 1141
Foreign Language 1202, 2201 (if same language as high school)
1201, 1202, 2201 (if new or different language)
Biology 1110 or 2111 and 1273, 1273L
Chemistry 1101, 1101L, 1102, 1102L, 2131, 2131L, 2132, 2132L
Physics 1101, 1101L, 1102, 1102L

Students must select one course from each of the following groups for a total of four courses.

Group 1: English 2101, 2102, 2104, 2111, 2112; Theatre 1101, Music 1132

Group 2: Religion 1101; Philosophy 2101, 3201

Group 3: Economics 2101

Group 4: History 1120, 1121, 1160, 1161, 3101, 3102, 3135, 3136

Physical Education: Two semesters of physical education activities are required.

Social Work

Students planning to attend a graduate school of social work are advised to pursue a course of study which involves substantial preparation in the social sciences and humanities. Whichever major is chosen, the student should select a variety of courses pertaining to human development as well as the social, cultural, political and economic contexts of living. The student should also take social science research and social statistics courses.

Completion of an undergraduate major or concentration in social work may enable the student to earn the MSW in less than the two years originally required.

Veterinary Medicine

Through careful planning with their academic advisers, it is possible for UNCC students to meet the requirements for admission to the School of Veterinary Medicine at North Carolina State University.

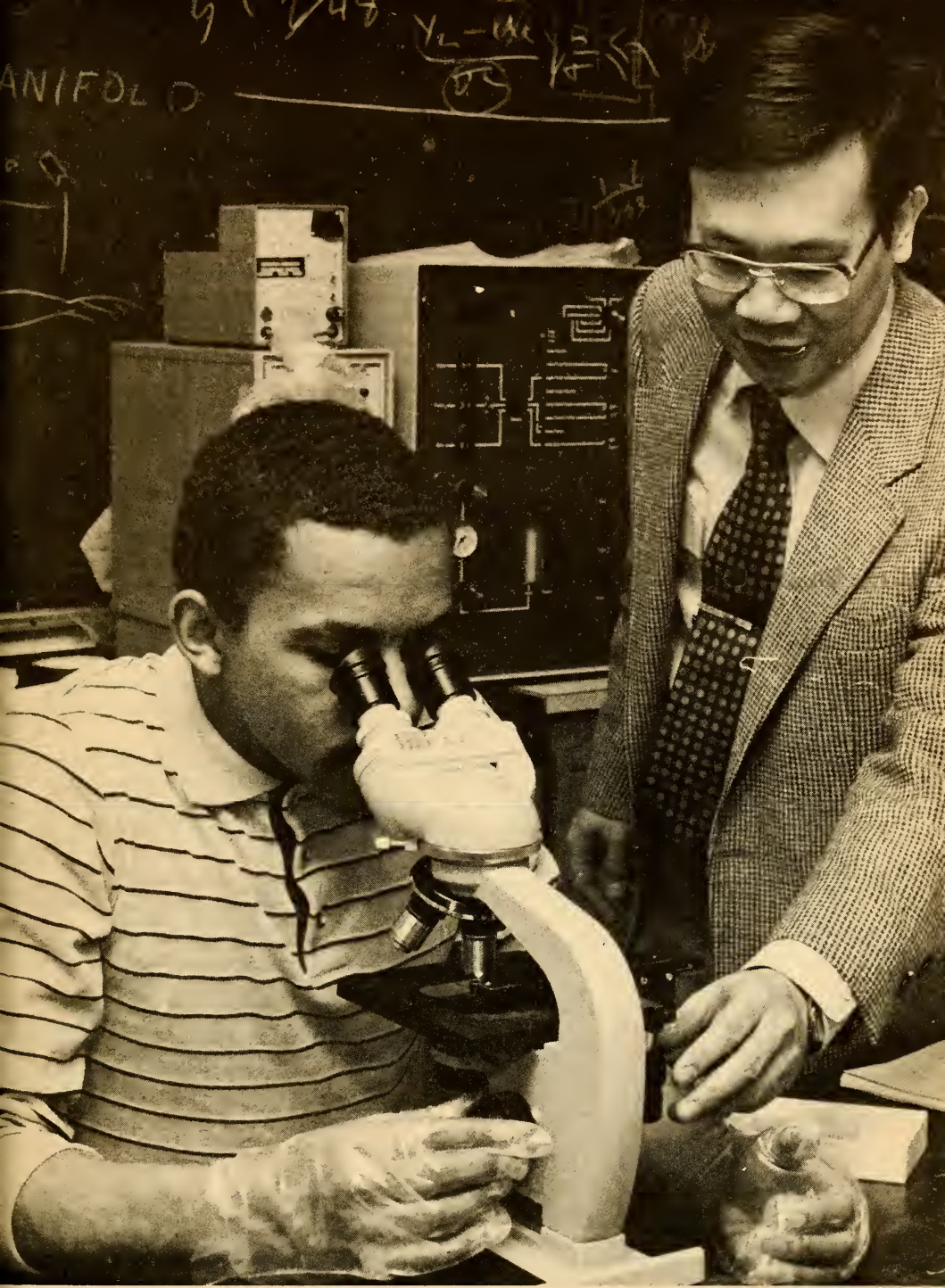
The following UNCC courses must be completed *by the time of application* to the School of Veterinary Medicine:

English, general	6 hours	Biology, BIO 2111, 2112	8 hours
Math, MAT 1103, 1120, 1220	9 hours	BIO 3166, Genetics	3 hours
Physics, general	8 hours	BIO 4255	
Chemistry, inorganic	8 hours	Microbiology	4 hours
organic	8 hours	BIO 4293, Comparative	
biochemistry	3 hours	Anatomy	4 hours

Applicants must also have completed the following courses which are *not* available at UNCC:

Medical Terminology	2 hours
Animal and/or Poultry Science with at least one course in animal nutrition	7 hours

The above courses are available through transient study from North Carolina State University or North Carolina Agricultural and Technical University.



Benefactions

PROFESSORSHIPS

The *Barclays American Corporation Professorships in Business Administration* were established by the American Credit Foundation of North Carolina, Inc. The Foundation approved a statement of intent in January, 1967 to contribute $100,000 to be paid over a period of 10 years and to be used for the presentation of a salary supplement or supplements to a distinguished member or members of the faculty of the College of Business Administration, who will be known as *Barclays American Corporation Professors of Business Administration.*

The *Robert Lee Bailey Professorship in History* was UNCC's first professorship, established in December, 1965 by Mr. and Mrs. Sanford V. Davenport to honor and reward excellence in teaching by a gift in memory of her brother, Lieutenant Robert Lee Bailey of the 10th Armored Division of the U.S. Army, who was killed in Germany on March 22, 1945, near the end of the conflict in Europe. Born on April 21, 1914, in Concord, he attended Davidson College and before the war was associated with Broyhill Furniture Company.

The *Celanese Professor of Engineering* is a distinguished professorship in the College of Engineering, which has its salary supplemented by part of the income from the rental of a building donated by the Celanese Corporation and valued at more than $1 million.

The *Charles E. Cullen Professorship* was established in 1973 by the Charlotte Sales and Marketing Executives, Inc. to honor the late "Charlie" Cullen of Charlotte. The professorship consists of an endowment in the amount of $100,000 by Charlotte Sales and Marketing Executives, Inc. The income from the endowment is to provide a salary supplement or supplements for a distinguished professor of marketing in the College of Business Administration.

The *Rush S. Dickson Professorships in Finance* were established in memory of the late Rush S. Dickson of Charlotte. The professorships are made possible through the generous gifts and pledges, totaling $100,000 by the Dickson Foundation of Mount Holly and the Rush S. Dickson Family Foundation of Charlotte. Mr. Dickson established both foundations. The net income from the gifts is used for the payment of a salary supplement or supplements to a distinguished member or members of the faculty of the College of Business Administration in the field of finance.

The *Frank Porter Graham Professorship in Black Studies* was established by Miss Alice Lindsay Tate in honor of the former president of the University of North Carolina, United States senator and United Nations mediator. The income from the professorship fund will be used as a salary supplement for a distinguished member or members of the faculty of the University of North Carolina at Charlotte.

The *Artie Sue Kerley Professorship in Nursing* was established in 1972 by Miss Artie Sue Kerley to provide a salary supplement for a distinguished member of the College of Nursing faculty.

The *Charles H. Stone Fund* was given by Mrs. Stone in memory of her husband, a pioneer in the chemical and dyestuff industry in the South. The grant is dedicated to perpetuating the memory of Mr. Stone and assuring the high quality of chemistry instruction at the University of North Carolina at Charlotte. The net income is used for the payment of a salary supplement to a distinguished member or members of the chemistry faculty, who are designated as "Charles H. Stone Professors of Chemistry." Before World War I, Mr. Stone was employed by a German chemical company, and later he formed his own company in Charlotte and operated it until 1937 when it was purchased by American Cyanamid Company. Mr. Stone remained active with the company until his retirement in 1947. He died October 30, 1963.

NCNB AWARDS FOR TEACHING EXCELLENCE

The generosity of the North Carolina National Bank has made possible the NCNB Awards established for the purpose of recognizing and honoring members of the faculty for distinguished service. The NCNB Awards initially are used to reward excellence in teaching by members of the faculty or to honor faculty members for distinguished research and scholarly writing or devoted and sacrificial service to the University and to mankind.

SCHOLARSHIPS

UNCC offers a comprehensive undergraduate scholarship program made possible by gifts from individuals, corporations and foundations. Major scholarships include:

Alumni Scholarships for Merit
C.C. Cameron Scholars Program
Colvard Scholarships for Merit
Bonnie E. Cone Scholarships for Merit
Cameron Morrison Scholarships

For a description of these scholarships and a listing of others, see pages 55-57 of this catalog in the section on "Financial Aid."

University Regulation Of Student Conduct

University Regulation of Student Conduct

The University of North Carolina at Charlotte has enacted two codes governing student conduct. All UNCC students are expected to be familiar with each code and to conduct themselves in accordance with the standards set forth.

THE UNCC CODE OF STUDENT ACADEMIC INTEGRITY governs the responsibility of students to maintain integrity in academic work, defines violations of the standards, describes procedures for handling alleged violations of the standards, and lists applicable penalties. The following conduct is prohibited in that *Code* as violating those standards:

A. **Cheating.** Intentionally using or attempting to use unauthorized materials, information, notes, study aids or other devices in any academic exercise

B. **Fabrication and Falsification.** Intentional and unauthorized alteration or invention of any information or citation in an academic exercise.

C. **Multiple Submission.** The submission of substantial portions of the same academic work (including oral reports) for credit more than once without authorization.

D. **Plagiarism.** Intentionally or knowingly presenting the work of another as one's own (i.e., without proper acknowledgement of the source.)

E. **Abuse of Academic Materials.** Intentionally or knowingly destroying, stealing, or making inaccessible library or other academic resource material.

F. **Complicity in Academic Dishonesty.** Intentionally or knowingly helping or attempting to help another to commit an act of academic dishonesty.

A fuller explanation of the definitions, and a description of procedures used in cases where student violations are alleged, is found in the complete text of the academic integrity code.

THE UNCC CODE OF STUDENT RESPONSIBILITY sets forth standards relating to student conduct other than academic conduct, describes the procedures for handling cases, and sets forth applicable penalties. The following conduct is prohibited and subjects a student to disciplinary action:

A. Intentionally or recklessly causing physical harm to any person on University premises or at University-sponsored activities, or intentionally or recklessly causing reasonable apprehension of such harm; intentionally or recklessly subjecting another person to a substantial risk of physical injury or serious emotional harm.

B. Unauthorized use, possession or storage of any weapon on University premises or at University-sponsored activities.

C. Intentionally initiating or causing to be initiated any false report, warning or threat of fire, explosion, or other emergency on University premises or at University-sponsored activities.

D. Intentionally or recklessly interfering with normal University or University-sponsored activities, including, but not limited to, studying, teaching, research, University administration, or fire, police or emergency services. Students are advised that a separate policy (UNCC Policy Statement #58, "Interference with University Operations," approved by the UNCC Board of Trustees in 1981), prohibits student action taken "with the intent to obstruct or disrupt any normal operation or function of the University." Students charged with violation of that policy may be subject to disciplinary action, in the Chancellor's sole discretion, in accord with the procedures described herein, or in accord with procedures applicable to the Chancellor's Hearing Panel. The full text of the Policy Statement is available for inspection in the Office of the Dean of Students.

E. Knowingly violating the terms of any disciplinary sanction imposed in accordance with this code.

F. Unauthorized distribution or possession for purposes of distribution of any controlled substance or illegal drug on University premises or at University-sponsored activities

G. Intentionally or recklessly misusing or damaging fire safety equipment or elevators.

H. Intentionally furnishing false information to the University.

I. Forgery, unauthorized alteration, or unauthorized use of any University document or instrument of identification.

J. Intentionally and substantially interfering with the freedom of expression of others on University premises or at University-sponsored activities.

K. Theft of property or of services on University premises or at University-sponsored activities; knowing possession of stolen property on University premises or at University-sponsored activities.

L. Intentionally or recklessly destroying or damaging the property of others on University premises or at University-sponsored activities.

M. Failure to comply with the directions of University officials, including campus police officers, acting in performance of their duties.

N. Violation of published University regulations or policies, as approved by the Vice Chancellor for Student Affairs. Such regulations or policies may include the residence hall contract, as well as those regulations prohibiting sexual harassment by students, regulations relating to entry and use of University facilities, use of vehicles and amplifying equipment, campus demonstrations, and misuse of identification cards.

O. Possessing, consuming, or distributing alcoholic beverages without authorization on University premises or at University-sponsored activities, including but not limited to possession or consumption of alcoholic beverages on campus or at University-sponsored activities by students below the legal minimum age; display or consumption of liquor, fortified wine, or mixed beverages by students less than 21 years of age in their campus residences; giving, furnishing, or selling any alcoholic beverage on campus or at any University-sponsored activity to any person not of sufficient legal age to possess or consume such alcoholic beverage; failing to abide by the provisions of an alcoholic beverage approval form; and any sale of any alcoholic beverage on the University campus. (The full text of University Policy Statement #57, "Use and Consumption of Alcoholic Beverages," is available for inspection in the Office of the Dean of Students.)

P. Use or possession of any controlled substance or illegal drug on University premises or at University-sponsored activities.

Q. Unauthorized presence in or use of University premises, facilities, or property.

R. Unauthorized use or possession of fireworks on University premises.

S. Engaging in disorderly conduct such as fighting, threatening behavior, public disturbance, or drunk and disorderly conduct

All UNCC students are expected to be familiar with *The UNCC Code of Student Academic Integrity* and *The University of North Carolina at Charlotte Code of Student Responsibility.*

Copies of these documents have been distributed to students. Any student who needs a copy of either document may obtain one at the Office of the Dean of Students.

The University reserves the right to amend the codes from time to time. Notice of amendments will be publicized.

Directory

The University of North Carolina

Sixteen Constituent Institutions

William C. Friday, B.S., LL.B., LL.D., D.C.L. ..... President
Raymond H. Dawson, B.A., M.A., Ph.D. ..... Vice President-Academic Affairs
L. Felix Joyner, A.B. ..... Vice President-Finance
Roy Carroll, B.A., M.A., Ph.D. ..... Vice President-Planning
Cleon F. Thompson, Jr., B.S., M.S., Ph.D. ..... Vice President-Student Services and Special Programs
Edgar Walton Jones, B.S., M.S., Ph.D. ..... Vice President-Research and Public Service
Arnold K. King, A.B., A.M., Ph.D. ..... Assistant to the President
R.D. McMillan, Jr., B.S. ..... Assistant to the President for Governmental Affairs
Richard H. Robinson, Jr., A.B., LL.B. ..... Assistant to the President
John W. Dunlop, B.A. ..... Director, The University of North Carolina Center for Public Television

History of the University of North Carolina

The University of North Carolina is comprised of all the public institutions of higher education in North Carolina that confer degrees at the baccalaureate level or higher. The University was authorized by the State Constitution in 1776, and it was chartered in 1789 by the General Assembly.

The University of North Carolina opened its doors to students at Chapel Hill in 1795. Thereafter, beginning in the latter part of the 19th century, the General Assembly of North Carolina has established and supported 15 other public senior institutions in keeping with Article IX, Section 8, of the Constitution of North Carolina which provides that the "General Assembly shall maintain a public system of higher education, comprising The University of North Carolina and such other institutions of higher education as the General Assembly may deem wise."

By 1969, The University of North Carolina included six constituent institutions, governed by a single Board of Trustees. This multi-campus University had its beginnings in legislation enacted in 1931 that defined The University of North Carolina to include The University of North Carolina at Chapel Hill, North Carolina State University at Raleigh, and The University of North Carolina at Greensboro. In the 1960's three additional campuses were added: The University of North Carolina at Charlotte, The University of North Carolina at Asheville, and The University of North Carolina at Wilmington.

Beginning in 1877, the General Assembly of North Carolina established or acquired 10 additional separately governed state-supported senior institutions of higher education. They are: Appalachian State University, East Carolina University, Elizabeth City State University, Fayetteville State University, North Carolina Agricultural and Technical State University, North Carolina Central University, North Carolina School of the Arts, Pembroke State University, Western Carolina University and Winston-Salem State University. Then, in 1971, the General Assembly redefined The University of North Carolina, and under the terms of that legislation all 16 public senior institutions became constituent institutions of The University of North Carolina.

The constitutionally authorized Board of Trustees of the six-campus University of North Carolina was designated the Board of Governors and this body is by law The University of North Carolina. The Board of Governors consists of 32 members elected by the General Assembly, and it is charged with "the general determination, control, supervision, management, and governance of all affairs of the constituent institutions." The chief executive officer of The University is the President.

Each constituent institution of The University has its own faculty and student body. The chief administrative officer of each institution is the chancellor, and the chancellors are responsible to the President.

Each constituent institution also has a board of trustees composed of 13 members: eight elected by the Board of Governors, four appointed by the Governor, and the elected president of the student body *ex officio*. (The School of the Arts has two additional *ex officio* trustees.) The principal powers of these institutional boards are exercised under a delegation of authority from the Board of Governors.

See page 8 for a brief history of the University of North Carolina at Charlotte.

Members of the Board of Governors

The University of North Carolina

Philip G. Carson (Chairman) ..... Asheville
Jacob H. Froelich, Jr. (Vice Chairman) ..... High Point
Mrs. A.R. Bowe (Secretary) ..... Murfreesboro
Irwin Belk ..... Charlotte
F.P. Bodenheimer ..... Raleigh
B. Irvin Boyle ..... Charlotte
Mrs. Robert H. Bullock ..... Shelby
Laurence A. Cobb ..... Charlotte
Wayne A. Corpening ..... Winston-Salem
Dr. J. Earl Danieley ..... Elon College
John Edwin Davenport ..... Nashville
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William A. Dees, Jr. ..... Goldsboro
Charles Z. Flack, Jr. ..... Forest City
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R. Phillip Haire ..... Sylva
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James E. Holshouser, Jr. ..... Southern Pines
William A. Johnson ..... Lillington
Robert L. "Roddy" Jones ..... Raleigh
John R. Jordan, Jr. ..... Raleigh
Reginald McCoy ..... Laurinburg
Mrs. John F. McNair, III ..... Winston-Salem
Mrs. Julia T. Morton ..... Linville
Samuel H. Poole ..... Southern Pines
J. Aaron Prevost ..... Hazelwood
Louis T. Randolph ..... Washington
Maceo A. Sloan ..... Durham
Asa T. Spaulding, Jr. ..... Durham
Dr. E.B. Turner ..... Lumberton
David J. Whichard, II ..... Greenville
William K. Woltz ..... Mount Airy

The University of North Carolina at Charlotte Board of Trustees

Chairman
Thomas M. Belk ..... Charlotte
Vice Chairman
Thomas I. Storrs ..... Charlotte
Secretary
John L. Fraley, Jr. ..... Cherryville
Ex Officio Member
Joey Preston ..... President, Student Body, King

TERM EXPIRES JUNE 30, 1985

Thomas M. Belk ..... Charlotte
Sarah H. Bissell ..... Charlotte
C.C. Cameron ..... Charlotte
John L. Fraley, Jr. ..... Cherryville
Thomas I. Storrs ..... Charlotte
Bland W. Worley ..... Charlotte

TERM EXPIRES JUNE 30, 1987

Kathleen R. Crosby ..... Charlotte
R. Stuart Dickson ..... Charlotte
James C. Fry ..... Gastonia
W. Duke Kimbrell ..... Gastonia
Elizabeth D. Koontz ..... Salisbury
Harold M. Messmer ..... Kannapolis

HONORARY TRUSTEES

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F. Douglas Biddy ..... Durham
William E. Bluford ..... Charlotte
C.C. Cameron ..... Raleigh
Frank H. Crowell ..... Lincolnton
N.K. Dickerson ..... Monroe
John L. Fraley ..... Cherryville
Elisabeth G. Hair ..... Charlotte
James A. Hardison, Jr. ..... Wadesboro
Howard H. Haworth ..... Morganton
Margaret A. King ..... Charlotte
Meredith R. Spangler ..... Charlotte
James L. Woodson ..... Salisbury

H.H. Arnold ..... Assistant Secretary

The University of North Carolina at Charlotte Administrative Officers and Staff

Chancellor's Office

E.K. Fretwell Jr., A.B., M.A.T., Ph.D. ..... *Chancellor*
H.H. Arnold, B.A., M.B.A. ..... *Executive Assistant to the Chancellor*
William McKinley Steimer, B.A., J.D. ..... ~~*Assistant to the Chancellor for Legal Affairs*~~ Univ. Attorney

Academic Affairs

Robert Carrubba, Dean Grad. School
James H. Werntz, Jr., B.A., M.S., Ph.D. ..... *Vice Chancellor for Academic Affairs*
Barbara A. Goodnight, B.S., M.A., Ph.D. ..... *Associate Vice Chancellor, Academic Affairs*
Harold Smith Clarke, B.S.B.A., M.Ed. ..... *Assistant Vice Chancellor for Academic Affairs*
Norman Willard Schul, B.A., M.A., Ph.D. ..... *Director, Office of Experiential Learning*
Donald Steila, B.S.Ed., M.A., Ph.D. ..... *Director, Mathematics and Science Education Center*
James Selby - Asst. VC Ed. Support Services
Wanda Ball Fisher, B.S. ..... *Director, Institutional Research*
John Reed Dir. Enrollment Services
~~Robert Alan Gwaltney, A.B., M.A., Ph.D. ..... *Dean, Assistant Director of Admissions*~~
Kathi M. Baucom, A.B., M.Ed. ..... *Director of Admissions*
Lillian Mills Anspach ..... *Assistant Director of Admissions*
Craig Fulton, B.A. ..... *Associate Director of Admissions*
Deborah Hearst, B.A., M.Ed. ..... *Assistant Director of Admissions*
Jean Meachem Frye, B.A. ..... *Minority Program Development Officer*
Lewis Robert Grogan, B.A., M.A. ..... *Assistant to the Dean of Admissions and Records*
Barbara Rogers Blaney, B.A., M.Ed. ..... *Registrar*
Eugene B. Adams, B.A., M.A. ..... *Assistant Registrar*
Charles Clinton Hight, B.Arch. ..... *Dean, College of Architecture*
Vacant ..... Schley R. Lyons ..... *Dean, College of Arts and Sciences*
Vacant Edward S. Perzel ..... *Associate Dean, College of Arts and Sciences*
Mario Azevedo
~~Bertha Lyons Maxwell, B.A., M.A., Ph.D.~~ ..... *Chairperson, Department of Afro-American and African Studies*
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~~Roger Howard Trumbore, B.S., Ph.D.~~ ..... *Chairperson, Department of Biology*
Gary Powell
~~Robert Harry Gibson, A.B., M.A., Ph.D.~~ ..... *Chairperson, Department of Chemistry*
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~~Edward Spaulding Perzel, B.A., M.A., Ph.D.~~ ..... *Chairperson, Department of History*
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Vacant ..... Arnold A. Cann Jr. ..... *Chairperson, Department of Psychology*
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Richard Monroe Conboy, B.S.B.A., M.B.A., Ph.D. ..... *Assistant Dean, College of Business Administration*
Thomas Coke Turner, B.S., M.B.A., C.P.A. ..... *Chairperson, Department of Accounting*
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Cpt. Harry B. Howell, B.S. ..... *Head, U.S. Army ROTC*
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Su-shing Chen
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Assoc. Dean
~~James William Shelnutt, B.M.E., M.S.~~ ... Ronald Priebe ... *Chairperson, Department of Engineering Technology*
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James Ronald Short, B.S.B.A. ..... *Associate Director, Computing Services*
Raymond A. Frankle, A.A., B.A., M.L.S. ..... *Director, Library*
Wilson Melville Stahl, B.S., M.S.L.S., M.S. ..... *Associate Director, Library*

Business Affairs

Leo E. Ells, B.S., M.B.A. ..... *Vice Chancellor for Business Affairs*
Robert E. Busche, B.B.C., M.A., P.E. ..... *Director of Physical Plant*
James L. Crawford, B.A. ..... *Business Manager*
Ralph D. Pedersen, B.S., M.S. ..... *Director of Personnel*
James H. Houston, B.S. ..... *Director of Purchasing*
Jerry E. Hudson, B.S. ..... *Director of Public Safety*
Olen B. Smith, B.S., M.B.A. ..... *Director of Financial Services*
M.J. Butler, B.G.S., B.A., B.S. ..... *Director of Campus Sales*
Rebecca J. Whitener, B.A., M.B.A. ..... *Internal Auditor*

Developmental Affairs

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Betty C. Whalen, B.A., M.A. ..... *Director of Alumni Affairs*
Nancy C. Stone, B.A., M.Ed ..... *Assistant Alumni Director*
Dean W. Colvard, B.S., M.A., Ph.D. ..... *Chancellor Emeritus*
Harry P. Creemers, B.A., M.U.A. ..... *Director for Development*
Ruth Thompson Hopper, B.A. ..... *Researcher*
Charles S. Myerly, B.S. ..... *Executive Director, UNCC Foundation*
Sarah O. Cullen ..... *Assistant Secretary, UNCC Foundation*
Bonnie E. Cone, B.S., A.M. ..... *Vice Chancellor Emerita*

Development

~~Research~~ and Public Service

Douglas Milton Orr, Jr., B.A., M.B.A., Ph.D. ..... *Vice Chancellor for Research and Public Service*
Lucy C. Henry, B.A., M.A. ..... *Director, Academic Grants and Contracts*
Jeff Mullins, B.A., M.B.A. ..... *Director, Athletics and Men's Head Basketball Coach*
Kevin John Billerman, B.A. ..... *Men's Assistant Basketball Coach*
Steven A. Billings, B.A. ..... *Men's and Women's Swimming Coach*
Rebecca Bowman, B.S., M.S. ..... *Women's Volleyball and Softball Coach*
Penny Brawley ..... *Women's Tennis Coach*
Mark Dominic Colone, B.A. ..... *Director, Sports Information*
Cindy Connelly, B.S. ..... *Women's Basketball Coach*
Arthur M. Abbott, B.S. ..... *Men's Tennis Coach*
David Alan Hall, B.A. ..... *Cross Country Coach*
Floyd William Kerr, B.A., M.A. ..... *Men's Golf Coach*
Willie Matthew ..... *Rifle Coach*
Bonnie McCoy, B.S., M.Ed. ..... *Academic Adviser*
Charles David Pendergraft, B.A. ..... *Men's Assistant Basketball Coach*
Gary Linn Robinson, B.A., M.A. ..... *Head Baseball Coach*
~~David R. Taylor, B.A.~~ Pete Pepevich ..... *Director, Athletic Foundation and Promotions*
Robert Emil Warming, M.S. ..... *Men's Soccer Coach*
Melvin A. Watkins, B.A. ..... *Men's Assistant Basketball Coach*
Judith Anita ~~Wilkins, B.S., M.S.~~ Rose ..... *Associate Director, Athletics*
R. Oakley Winters, A.B., M.A.T., Ed.D. ..... *Director, Continuing Education and Extension*
Kenneth G. Burrows, B.A., M.A., Ph.D. ..... *Program Director*
Sylvia Margaret Reed, B.A., M.A. ..... *Program Director*
Harold Josephson, B.A., M.A., Ph.D. ..... *Director, Center for International Studies*
Marian Evelyn Beane, B.A., M.A. ..... *Coordinator*
Judith M. Case ..... *Assistant Coordinator*
Mary H. Hartsell ..... *Program Assistant*
Barbara Reichel Mattingly, B.A., M.A. ..... *Lecturer*
Carol Mundt, B.S., M.Ed. ..... *Lecturer*
Nancy L. Pfingstag, B.A., M.A. ..... *Director, ELTI*
Levela Irene Rickard, B.A. ..... *Coordinator*
Allie P. Wall, B.A., M.A. ..... *Lecturer*
James Kenneth Sanford, A.B., M.A. ..... *Director, Public Information and Publications*
Garry Ballard, B.A. ..... *Associate Director*
Vivian Fogle, B.A. ..... *Publications Specialist*
Jane Nixon Siemion, B.F.A. ..... *Graphic Designer*
James G. Herrington ..... *Photographer*
Mary Dawn Bailey, B.A., M.A. ..... ~~*Acting Director,*~~ *Urban Institute and Faculty Research and Development Director*
Ronald M. Kahn - Head Small Business City Center
Jonathon Lee Benson, B.A., M.A., Ph.D. ..... *Associate Director*
Alan C. Black, B.A. ..... *Research Associate*
Maxie L. May ..... *Research Assistant, Piedmont Waste Exchange*
Director → William Joseph McCoy, A.B., M.A., Ph.D. ..... *Community Research and Service Director*
Mary A. McDaniel, A.B., M.Ed. ..... *Director, Piedmont Waste Exchange*
Jane Begole Miles, B.A., M.U.A. ..... *Special Projects Coordinator*
Paul Douglas Smith, B.S., M.A. ..... *Regional Information System Director*
Jennifer Roth, B.A., M.A. ..... *Station Manager, WFAE*
Andrea Cooper, B.A. ..... *Promotion Director*
Barry Gordemer, B.A. ..... *Operations Manager/Producer*
Jean Inaba, B.A. ..... *Music/Performance Director*
Kathleen A. Merritt, B.A. ..... *News and Public Affairs Director*
Fiona Ritchie, B.A. ..... *Development Director*
Paul B. Stribling, B.A. ..... *Production Manager/Jazz Producer*

Institute for Trans. Research + Ed. Wayne Walcott, Assist. Dir.

Student Affairs

Kathleen P. Faircloth, B.A., M.A., Ph.D. ..... *Vice Chancellor for Student Affairs*
Charles F. Lynch, B.A., M.Ed. ..... *Associate Vice Chancellor and Dean of Students*
Mary F. Howard, B.A., M.A. ..... *Associate Dean of Students*
Vacant ..... *Assistant Dean of Students*
Ronald B. Simono, B.S., M.S., Ph.D. ..... *Director, Counseling Center* + Health Servi
Evelyn C. Davis, B.A., M.A.T., Ed.D. ..... *Coordinator, Learning Assistance Service*
Peggy S. Smith, B.S., M.Ed. ..... *Assistant Coordinator, Learning Assistance Service*
Diane Shepard, B.S., M.Ed., Ed.S., Ph.D. ..... *Career Development Coordinator*
Susan R. Furr, B.A., M.A., Ph.D. ..... *Counseling Psychologist*
Vacant ..... *Counseling Psychologist*
Gloria J. Edmunds, B.S., M.S., M.Ed., Ph.D. ..... *Counseling Psychologist and Coordinator for Minority Student Programs*
Dale G. Wachowiak, A.B., M.A., Ph.D. ..... *Counseling Psychologist*
~~Olav Nilend, B.S., M.D., C.M.~~ Howard Surface ..... ~~*Medical Director*~~
Masherrill A. Fant, B.A., M.S. ..... *Health Educator*
Joan McCullough ..... *Administrative Officer*
Claudia Benson ..... *Nurse Supervisor*
Mildred English, B.S., M.A. ..... *Director, Placement*
Joan E. Olstad, B.A., M.S.Ed. ..... *Assistant Director, Placement*
Stephen F. Miller, A.A., B.A., M.Ed. ..... *Job Location and Development Coordinator*
Loy H. Witherspoon, A.B., B.D., Ph.D. ..... *Coordinator, Religious Affairs*
George F. Harpster, Jr. B.S., M.S., Ph.D. ..... *Director of Student Life and Special Projects*
Keith N. Wassum, B.A., M.B.A. ..... *Director, Cone University Center*
Gilbert Crittendon, B.A., M.A. ..... *Assistant Director, Cone University Center*
Mayme F. Webb, B.A., M.S. ..... *Associate Director of Cone University Center for Programs*
Mary Jane Phelan, A.A., B.S., M.S. ..... *Assistant Director of Campus Programs*
Vacant ..... *Support Services Coordinator*
~~Diane E. Edelman, B.A., M.Ed.~~ Mr. Sandy Kohn ..... *Director, Venture*
Arthur A. Kohn, A.S., B.A., M.Ed. ..... *Assistant Director, Venture*
Floyd W. Kerr, B.A., M.A. ..... *Director, Intramurals*
Terrie V. Houck, B.S., M.Ed. ..... *Assistant Director, Intramurals*
Roy R. Fielding, B.A., M.Ed. ..... *Aquatics Director*
Curtis R. Whalen, B.S., M.Ed. ..... *Director, Student Financial Aid*
Virginia J. Edwards ..... *Assistant Director, Student Financial Aid*
Brenda W. Vick, B.A., M.A. ..... *Financial Aid Counselor*
Jacklyn A. Simpson, B.S., M.Ed. ..... *Director, Residence Life*
Bradley W. Reid, B.S., M.S. ..... *Associate Director of Administration*
Ted J. Phillips, B.A., M.Ed. ..... *Associate Director for Staff and Student Development*
James M. Hoppa, B.S., M.S. ..... *Assistant Director of Facilities*
Daleen Downs, B.A., M.H.D.L. ..... *Resident Coordinator of Phase IV*
Diana Hoppa, B.S., M.S. ..... *Resident Coordinator of Apartments*
Karen McDougal, B.A., M.Ed. ..... *Resident Coordinator of Sanford Hall*
Thomas Jennings, B.S., M.A. ..... *Resident Coordinator of Scott Hall*
Vernon Wall, B.A., M.S. ..... *Resident Coordinator of Moore Hall*
Nancy McGuire, B.A., M.A. ..... *Resident Coordinator of Holshouser Hall*

The following persons are employed by various denominations and churches and are present on campus full-time to serve the spiritual needs of members of the University community.

Donald S. Rogers, B.A., M.A., B.D. ..... *Baptist*
Rusty Inman, B.A., M.Div., D.Min. ..... *Presbyterian/Methodist*
~~Joseph Zuschmidt, B.A., M.S.~~ ..... *Catholic*
Father Bill Bleiker
Rev. Richard C. Little - Lutheran

Faculty

***Indicates appointment to the Graduate Faculty of the University of North Carolina at Charlotte. Certain appointments, promotions, and resignations are not included.**

***William Clyde Friday,** *President, The University of North Carolina,* B.S., North Carolina State College; L.L.B., University of North Carolina at Chapel Hill

***E.K. Fretwell Jr. (1979),** *Chancellor, The University of North Carolina at Charlotte, and Professor of Curriculum and Instruction,* A.B., Wesleyan University; M.A.T., Harvard University; Ph.D., Columbia University

***William Morris Britt (1972),** *Vice Chancellor for Development and Professor of Curriculum and Instruction,* B.S., Western Carolina University; M.Ed., University of North Carolina at Chapel Hill; Ed.D., University of Tennessee

Leo E. Ells (1975), *Vice Chancellor for Business Affairs and Lecturer in Business Administration,* B.S., University of Maryland; M.B.A., Syracuse University

Kathleen Pitts Faircloth (1984), *Vice Chancellor for Student Affairs and Lecturer in Psychology,* B.A., Oglethorpe College; M.A., Ph.D., University of Alabama

***Douglas Milton Orr, Jr. (1968),** *Vice Chancellor for Research and Public Service, and Professor of Geography,* B.A., Davidson College; M.B.A., Ph.D., University of North Carolina at Chapel Hill

James H. Werntz, Jr. (1981), *Vice Chancellor for Academic Affairs and Professor of Physics,* B.A., Oberlin College; M.S., Ph.D., University of Wisconsin

***Mohamed Abdel-Hameed (1974),** *Professor of Mathematics,* B.S., Cairo University; M.S., Ph.D., Florida State University

***Leon Reed Adams (1972),** *Professor of Criminal Justice,* B.A., University of North Carolina at Chapel HIll; M.A., University of Maryland; Ph.D., Florida State University

***Robert George Aitken (1983),** *Assistant Professor of Physics,* B.S., Fordham University; M.S., Northwestern University; Ph.D., University of Illinois

***Charles Michael Allen (1974),** *Professor of Computer Engineering,* B.S.E.E., M.S.E.E., Carnegie-Mellon Institute; Ph.D., State University of New York at Buffalo

Tyler Arthur Allison, Jr. (1984), *Assistant Professor of Electrical Engineering Technology,* A.A., Central Piedmont Community College; B.S.E., University of North Carolina at Charlotte; M.E., University of South Carolina

***Hany Mahmoud Aly (1980),** *Assistant Professor of Mechanical Engineering,* B.S., M.S., Cairo University; Ph.D., Auburn University

***David James Amante (1974),** *Associate Professor of English,* A.B., M.A., Ph.D., University of Michigan

***Louis Amato (1980),** *Associate Professor of Economics,* A.B., Lenoir Rhyne College; M.A., University of North Carolina at Greensboro; Ph.D., University of South Carolina

***Don Allen Ammons (1977),** *Assistant Professor of Human Services,* B.S.Ed., Defiance College; M.Ed., Ph.D., University of Toledo

Elizabeth T. Anderson (1978), *Adjunct Lecturer in Medical Technology,* B.A., University of North Carolina at Greensboro; M.T.

***Robert Frank Anderson (1983),** *Associate Professor of Mathematics,* B.S., M.S., Iowa State University; Ph.D., University of Minnesota

***Robert Graham Anderson (1970),** *Professor of Architecture,* B.Arch., North Carolina State College; M.Arch, Harvard University

***Ronald Eric Anderson (1967),** *Professor of Art,* B.F.A., Miami University; M.F.A., Pratt Institute

Priscilla Mae Andrews (1980), *Associate Professor of Nursing,* B.S., M.S., Boston University; R.N.

***Clyde Robert Appleton (1978),** *Associate Professor of Creative Arts,* A.B., Park College; M.Mus.Ed., University of Arizona; Ph.D., New York University

***Theodore Self Arrington (1973),** *Professor of Political Science,* B.A., University of New Mexico; M.A., Ph.D., University of Arizona

Josette Gourley Arvey (1983), *Adjunct Research Associate in Biology and Visual Arts*

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***Frank Carey Barnes (1973),** *Professor of Business Administration,* B.I.E., Georgia Institute of Technology; M.B.A., Ph.D., Georgia State University

***Robert Latta Barret (1979),** *Associate Professor of Human Services,* A.B., Southwestern at Memphis; M.A.T., Vanderbilt University; M.Ed., University of North Carolina at Charlotte; Ph.D., Georgia State University

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***John R. Beattie, Jr. (1983),** *Visiting Assistant Professor of Curriculum and Instruction,* B.A., M.Ed., University of Virginia; Ph.D., University of Florida

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***Carlos Goodwin Bell (1970),** *Professor of Civil Engineering,* B.S.C.E., Texas A & M University; S.M., S.D., Harvard University

John Francis Bender (1982), *Assistant Professor of Earth Sciences,* B.S., State University of New York at New Paltz; M.S., Pennsylvania State University; Ph.D., State University of New York at Stony Brook

Nelson Speer Benzing, Jr. (1979), *Associate Professor of Architecture,* B.S., B.Arch., Georgia Institute of Technology; M.Arch., Pratt Institute

***Linda Sloan Berne (1978),** *Associate Professor of Health and Physical Education,* B.S., Mars Hill College; M.A.T., Ed.D., University of South Carolina

***Fernando Bertoli (1972),** *Associate Professor of Sociology,* B.A., Universidad de San Marcos; M.S., Ph.D., Cornell University

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***Julia Kirk Blackwelder (1977),** *Associate Professor of History,* B.A., University of Pennsylvania; M.A., Ph.D., Emory University

***Richard Thomas Blackwell (1983),** *Visiting Assistant Professor of Human Services,* B.S., University of North Carolina at Chapel Hill; M.Div., Duke University; Ph.D., University of North Carolina at Chapel Hill

Kathleen Underman Boggs (1984), *Associate Professor of Nursing,* B.S.N., Niagara University; M.S.N., Ph.D., University of Maryland

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***Rachel Ann Bonney (1973),** *Associate Professor of Anthropology,* B.A., M.A., University of Minnesota; Ph.D., University of Arizona

***Ronald Earl Booth, Jr. (1968),** *Professor of Music,* B.Mus., University of Texas; M.Mus., Indiana University; Ph.D., University of Iowa

***Larry Charles Bostian (1967),** *Associate Professor of Health and Physical Education,* B.S., North Carolina State University at Raleigh; M.Ed., University of North Carolina at Chapel Hill; D.Ed., University of Virginia

Benny Don Bowers (1976), *Lecturer in Business Administration,* B.S., M.T.E., North Carolina State University at Raleigh; M.B.A., University of North Carolina at Chapel Hill

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Geraldine Brady (1981), *Adjunct Associate Professor of Nursing,* B.A., B.S.N., University of South Carolina; M.N., Emory University

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***Saul Brenner (1965),** *Associate Professor of Political Science,* B.A., Brooklyn College; L.L.B., Columbia University; M.A., Brooklyn College; Ph.D., New York University

Edwina Bringle (1973), *Associate Professor of Art*

***William Morris Britt (1972),** *Vice Chancellor for Development and Professor of Curriculum and Instruction,* B.S., Western Carolina University; M.Ed., University of North Carolina at Chapel Hill; Ed.D., University of Tennessee

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Cheryl Luvenia Brown (1982), *Assistant Professor in Political Science,* B.A., University of Florida; M.A., Ph.D., University of Michigan

Janet Edwards Brown (1975), *Adjunct Lecturer in Nursing;* R.N.

***Philip Carlton Brown (1982),** *Assistant Professor of History,* B.A., College of Wooster; M.A., University of Rochester; M.A., Ph.D., University of Pennsylvania

Richard Dean Brown (1984), *Adjunct Assistant Professor of Biology,* B.A., Columbia Union College; M.S., Ph.D., The Ohio State University

James Stephen Browning (1967), *Lecturer in Civil Engineering (part-time),* B.S.C.E., M.S., North Carolina State University

Deborah Creed Bumgardner (1978), *Lecturer in Psychology,* B.A., University of North Carolina at Charlotte

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David A. Burkhalter (1981), *Institute Associate and Adjunct Professor of Political Science,* B.A., Bethel College

John Bland Burkhardt (1980), *Adjunct Associate Professor of Nursing,* B.B.A., Memphis State University; M.H.A., Duke University

***Charles Alan Burnap (1982),** *Associate Professor of Mathematics,* B.S., Rensselaer Polytechnic Institute; A.M., Ph.D., Harvard University

***Glenn Stephen Burne (1971),** *Professor of English,* B.A., University of California at Berkeley; Diplome d'Etudes, University of Paris; M.A., Ph.D., University of Washington

Kenneth Charles Burrows (1980), *Program Director for Continuing Education and Extension and Adjunct Assistant Professor of Curriculum and Instruction,* B.A., Durham University, England; M.A., Clemson University; Ph.D., Ohio State University

***Stewart Fowler Bush (1969),** *Professor of Chemistry,* A.B., Erskine College; Ph.D., University of South Carolina

Donald Roy Byrum (1974), *Chairperson, Department of Visual Arts, and Associate Professor of Art,* B.F.A., Rhode Island School of Design; M.F.A., University of Michigan

***Elinor Brooks Caddell (1965),** *A. Sue Kerley Professor of Nursing,* B.S.N.E., M.S.N., Duke University; R.N.

***Lawrence Gibson Calhoun, Jr. (1973),** *Professor of Psychology,* B.A., St. Andrews Presbyterian College; M.A., Xavier University; Ph.D., University of Georgia

***Mary Lynne Calhoun (1982),** *Assistant Professor of Curriculum and Instruction,* A.B., Randolph-Macon Woman's College; M.Ed., Ph.D., University of Georgia

Gerald Edward Calvasina (1982), *Assistant Professor of Business Administration,* B.B.A., M.B.A., Ph.D., University of Mississippi

Robert Campbell (1982), *Distinguished Visiting Architect (part-time),* B.A., M.Arch., Harvard University; M.S., Columbia University

***Arnold Augustus Cann, Jr. (1975),** *Chairperson, Department of Psychology, and Professor of Psychology,* B.A., Northeastern University; Ph.D., Indiana University

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Robert W. Carrubba (1985), *Dean, Graduate School, and Professor of Classics,* A.B., A.M., Fordham University; A.M., Ph.D., Princeton University

***Ann Cathey Carver (1969),** *Professor of English,* B.A., Limestone College; M.A., University of Arkansas; Ph.D., Emory University

***Thomas Joseph Cassen (1976),** *Associate Professor of Chemistry,* B.A., Ph.D., Polytechnic Institute of Brooklyn

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Susan Fishman Cernyak (1972), *Associate Professor of German,* B.A., Southwest Missouri State College; M.A., Ph.D., University of Kansas

Arunachalam Chandrasekaran (1984), *Visiting Associate Professor of Electrical Engineering,* B.E., University of Madras; M.E., Indian Institute of Science; Ph.D., Indian Institute of Technology

Beatrice A. Chase (1984), *Associate Professor of Nursing,* B.S., Villanova University; M.A., M.S., Ed.D., Columbia University

***Keh-Hsun Chen (1978),** *Associate Professor of Computer Science,* B.S., Taiwan Cheng-Kung University; M.S., National Tsing Hua University; Ph.D., Duke University

Keh-Wei Chen (1984), *Assistant Professor of Mathematics,* B.S., National Taiwan University; M.A., Columbia University; Ph.D., University of California at Berkeley

***Harry Ira Chernotsky (1978),** *Assistant Professor of Political Science,* B.A., M.A., Ph.D., Rutgers, The State University

Charles Burnon Christie (1971), *Associate Professor of Electrical Engineering Technology,* B.S.E.E., Milwaukee School of Engineering; M.E., Pennsylvania State University

David C. Chuber (1984), *Assistant Professor (Mil.) of Military Science,* B.A., university of North Carolina at Charlotte

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***Thomas Blair Clark (1976),** *Assistant Professor of Curriculum and Instruction,* B.A., M.A.T., University of North Carolina at Chapel Hill; M.A., University of North Carolina at Greensboro; Ph.D., Florida State University

***James William Clay (1965),** *Director, Urban Institute, and Professor of Geography and Earth Sciences,* B.S., M.S., Marshall University; Ph.D., University of North Carolina at Chapel Hill

Myrtle May Clinton (1978), *Associate Professor of Nursing,* B.S., M.A., Columbia University

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***Robert Joseph Coleman (1970),** *Associate Professor of Electrical Engineering,* B.S.E.E., M.S., Ph.D., Auburn University

***Richard Monroe Conboy (1970),** *Assistant Dean, College of Business Administration, and Assistant Professor of Business Administration,* B.S.B.A., Old Dominion University; M.B.A., Ph.D., Virginia Polytechnic Institute and State University

***John Edward Connaughton (1978),** *Associate Professor of Economics,* B.A., Boston State College; M.A., Ph.D., Northeastern University

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Jean Ellen S. Crawford (1984), *Adjunct Associate Professor of Nursing,* B.S.N., St. Olaf College; M.N., The University of South Carolina

Shelley Jean Crisp (1982), *Lecturer in English,* B.A., University of North Carolina at Chapel Hill; M.A., North Carolina State University in Raleigh

Robert Thomas Croghan (1974), *Associate Professor of Creative Arts,* B.A., Franklin College

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***James Carroll Crosthwaite (1965),** *Professor of Chemistry,* B.S., Anderson College; M.A., DePauw University; Ph.D., Duke University

***Marvin Joseph Croy (1980),** *Assistant Professor of Philosophy,* B.A., Ph.D., Florida State University

Kent Edward Curran (1984), *Associate Professor of Business Administration,* B.S.M.E., M.B.A., Bradley University; D.B.A., Louisiana State University

Mary Alyce Curran (1984), *Assistant Professor of Nursing,* B.S.N., University of South Alabama; M.S.N., University of Tennessee; Ph.D., Vanderbilt University

***Louis Gilbert Diagnault (1982),** *Assistant Professor of Chemistry,* B.S., Clarkson College of Technology; Ph.D., University of Rochester

***William Albert Dailey (1969),** *Associate Professor of Voice,* B.M.E., Bethany College; M.M.E., Indiana University; Ph.D., Catholic University

Loran LeRoy Danielson (1977), *Adjunct Professor of Biology,* B.A., M.S., Ph.D., State University of Iowa

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***Boyd Hill Davis (1970),** *Professor of English,* B.A., M.A., University of Southwestern Louisiana; Ph.D., University of Denver

***Evelyn C. Davis (1977),** *Coordinator of Educational Services Program and Associate Professor of Curriculum and Instruction,* B.A, Furman University; M.A.T., Converse College; Ed.D., Auburn University

Gregory Davis (1979), *Lecturer in Afro-American and African Studies,* B.A., University of North Carolina at Charlotte; M.Div., Duke University

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***William Young Davis, Jr. (1970),** *Chairperson, Department of Economics, and Professor of Economics,* B.A., Furman University; Ph.D., University of Georgia

***Robert Alan Day (1981),** *Assistant Professor of Sociology,* B.A., University of Montana; M.A., Ohio State University; Ph.D., University of Missouri-Columbia

***Charles William Dean (1982),** *Chairperson, Department of Criminal Justice, and Professor of Criminal Justice,* B.A., Asbury College; M.A., PH.D., University of Illinois

Sandra Carol Deel (1984), *Lecturer in English,* B.A., Urbana College; M.A., University of Toledo

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INDEX

—A—

Academic Advisers, Assignment of.....60
Academic Affairs 12
Academic Calendar.....4-5
Academic Grants and Contracts 21
Academic Honors.....69
Academic Integrity, Code of 362
Academic Regulations 59-75
Academic Structure 10
Accounting, Department of 224-227
  B.S. in 224
  Course Descriptions 226-227
  Curriculum Outlines.....225
Accreditation.....10
Activities, Student.....24-26
Adding a Course 61
Administration (Education).....242-280
  Course Descriptions 262-263
Administrative Officers
  and Staff.....370-373
Administration of UNCC 366
Admission
  Early.....34
  Graduate.....37-43
  Of Auditors 36, 38
  Of Escrow Program Participants.....36
  Of Foreign Applicants.....32-33, 39
  Of Non-degree Students 37
  Of Senior Citizens 36
  Of Transfer Students 34-35
  Of Transient Students (Visitors) ...37, 38
  To Candidacy (Graduate).....72, 75
  To the University 32
  Undergraduate 32-37
Advanced Placement Course Credit 66
Advanced Standing.....66-68
Advanced Study, Certificates of....250-251
Advisers, Academic (Assignment of) 60
Afro-American and
  African Studies.....86-89, 344
Air Force ROTC.....276-278
Alcoholic Beverages 363
Alumni Association 22-23
Alumni Office.....23
Alumni Scholarships for Merit 23, 55
American Politics,
  Course Descriptions 180-181
American Studies 90-91, 344
Anthropology.....199-201, 205-207
  Course Descriptions 205-207
  Curriculum Outlines.....200
  Major in 199-200
Apartments (See Residence Halls)
Appeal Procedures
  Academic Status 69
  Admission or Readmission 69
  Handicapped Services 17
  Refunds 52
  Residence Status 48
  Suspension 69
  Traffic and Parking 51
Application Dates.....31
Application Fee.....50
Application Process, Financial Aid.....53
Application for Degree 68
Architecture, College of.....79-84
  Admission to 35
  Bachelor of 80
  Bachelor of Arts in.....79-80
  Course Descriptions 82-84
  Curriculum Outlines 81-82
Army ROTC 279-280
Art (See Visual Arts)
Arts and Sciences, College of 85-219
Assessments, Special 50
Assistantships, Graduate 54
Astronomy, Course Descriptions.....176
Athletics 21-22
Attendance.....62
Auditors, Admission of 36, 38
  Registration of 62
Automobile, Registration of 50-51
Awards 26-27

—B—

Baccalaureate Degrees 30
  Requirements for.....69-74
  Bachelor of Architecture.....73
  Bachelor of Arts.....72
  Bachelor of Creative Arts.....73
  Bachelor of Engineering
    Technology 74
  Bachelor of Science 72
  Bachelor of Science in
    Civil Engineering 73
  Bachelor of Science in
    Electrical Engineering 73
  Bachelor of Science in
    Mechanical Engineering.....73
  Bachelor of Science in Nursing 74
Bailey, Robert Lee Professorship 358
BarclaysAmerican Corporation
  Professorships 358
Baseball.....21-22
Basketball.....21-22
Benefactions.....357-359
Biology, Department of.....92-101
  B.A. in 92
  B.S. in 92
  Curriculum Outlines 93-95
  Graduate Course Descriptions 98-101
  Master of Science in 96
  Medical Technology Option 95
  Undergraduate Course
    Descriptions 96-100

Bonnie E. Cone Scholarships for Merit 55
Bookstore.....18
Brocker Health Center 16
Bus Service 17
Business Administration,
College of 220-241
Department of Accounting 224-227
Department of Business Administration.....228-234
Department of Economics.....235-241
Master's Degree.....221-223
Business Administration,
Department of 228-234
Admission to 34
B.A. in 228
Course Descriptions 231-234
Curriculum Outlines.....230
Master of 221-223
Business Affairs.....16-18

—C—

Cafeterias 17-18
Calendar, Academic 4-5
Cameron Scholars Program 55
Cars, Registration of 50-51
Catalog Policies 60
Celanese Professorship 358
Certificates of Advanced Study 250-251
Certification, Teacher 68
Chancellor's Club.....23
Chancellor's List.....69
Change of Degree or Major.....62
Charlotte Transit System 17
Checks, Returned 46
Chemical Engineering.....352-353
Chemistry, Department of.....102-109
B.A. in 102
B.S. in 102
Curriculum Outlines 103-105
Graduate Course Descriptions ...108-109
Honors Program.....103
Master of Science in 106
Medical Technology Option 102
Undergraduate Course Descriptions 106-109
Child and Family Development 269-270, 272
Children of Veterans 54
Chimney Rock Park Field Station 13
Citations, Traffic and Parking.....51
Civil Engineering,
Department of 287-292
Course Descriptions 289-292
Curriculum Outlines.....288
Classification of Undergraduates.....65
Clinicals 345
Clubs.....25
College Level Examination Program (CLEP).....66-67
Colvard Scholarships for Merit 55
Commencement Marshals 69
Community Research Service Program 20
Comparative Politics and Area Studies Course Descriptions 181-182
Comprehensive Examination
Graduate 75
Human Development and Learning ..290
Computing Services 13
Computer Science,
Department of 328-333
B.A. in 328
B.S. in 328
Course Descriptions 331-333
Curriculum Outlines 329-330
Cone Scholarships for Merit 55
Cone University Center 14
Consortium, Charlotte Area Educational 344
Consortium Registration 61
Continued Enrollment,
Requirements for 65
Continuing Education 18
Cooperative Education.....345-346
Corrections (See Criminal Justice)
Correspondence Courses 67
Correspondence Directory Inside Front Cover
Counseling and Guidance.....270-271, 272-274
Counseling Center 15
Course Level Requirement 70
Course Load 62
Course Numbering System 78
Course Requirements for Degree 72-74
Course Selection 78
Courses of Study.....78-343
Credit by Examination 63, 68
Credit by Examination Fee.....50
Credit, Registration for.....61
Credit, Transfer.....66-68
Credits 63
Criminal Justice,
Department of 110-114
B.S. in 110
Concentrations in 110-111
Graduate Course Descriptions ...113-114
M.S. in 111-112
Minor in.....111
Undergraduate Course Descriptions 112-113
Cross Country.....22
Cullen, Charles E. Professorship.....358
Curriculum and Instruction,
Department of 245-259
Bachelor of Arts 245-249
Certificate of Advanced Study ...250-251
Course Descriptions 252-259
Elementary Education..246-247, 249, 251
Master of Education.....249-250
Middle Grades Education.....248, 250

Reading Education 250
Secondary Education 249, 251
Special Education 250, 251
Student Teaching 249
Teaching English as a Second Language 250

—D—

Dance (See Performing Arts)
Degree, Application for 68
Change of 62
Requirements 69-75
Second 68
Degrees Offered 30-31
Dentistry 353
Development 22-23
Directory 365-402
Administrative Officers and Staff 370-373
Board of Trustees 369
Emeritus Faculty 401-402
Faculty 374-400
UNC Administration 366
UNC Board of Governors 368
Distinction, Graduation with 69
Dormitories (See Residence Halls)
Dropping a Course 61
Drugs, Illegal 362
Dual Undergraduate/Graduate Registration 61

—E—

Early Admission 34
Early Childhood Education 246
Earth Sciences
B.A. in 133
B.S. in 133-134
Course Descriptions 138-140
Ecological Reserve 13
Economic Development and Planning 21
Economics, Department of 235-241
Course Descriptions 239-241
Curriculum Outlines 237-238
Education and Allied Professions, College of 242-280
Air Force Aerospace Studies Area (Air Force ROTC) 276-278
Curriculum and Instruction, Department of 245-259
Educational Administration, Department of 260-263
Health and Physical Education, Department of 264-268
Human Services, Department of 269-278
Military Science Area (Army ROTC) 279-280
Educational Administration, Department of 260-263
Certificate of Advanced Study 261
Course Descriptions 262-263
Master of Education 260
Electrical Engineering, Department of 293-301
Course Descriptions 294-301
Curriculum Outlines 294
Elementary Education 246-247, 249, 251
Certificate of Advanced Study in 251
Emergency Numbers .....Inside Front Cover
Emeritus Faculty 401-402
Employment 15, 54
Engineering, College of 281-333
Admission to 34
Baccalaureate Program 281-283
Continuing Engineering Studies 285-286
Course Descriptions 285-286
Department of Civil Engineering 287-292
Department of Electrical Engineering 293-301
Department of Engineering Technology 310-327
Department of Mechanical Engineering and Engineering Science 302-309
M.S. in 283-285
Engineering Technology, Department of 310-327
Admission to 35, 311-312
B.E.T. Degree 74, 310-311
Course Descriptions 321-327
Curriculum Outlines 315-319
English, Department of 115-123
B.A. in 115-116
Graduate Course Descriptions 120-123
M.A. in 116
Undergraduate Course Descriptions 117-122
English Language Training Institute 19-20, 344
English Placement Procedures 78
English, Teach as a Second Language 250
Equal Opportunity 11
Escrow Program Participants, Admission of 36
Evening Courses 10
Examination, Comprehensive (Graduate) 75
Examination, Credit by 63, 68
Exchange Programs 344-345
Expenses, Student 46
Experiential Learning Programs 345-346
Experimental Ecological Reserve 13
Extension 18
Extension Courses 67

—F—

Facilities and Services 12-27
Faculty 374-400
Faculty Research and Public Information 20

Fee Payment 46
Fellowships, Graduate 54
Financial Aid 52-57
Financial Information 45-57
Food Service 17-18
Foreign Applicants, Admission of
Graduate 39
Undergraduate 32
Foreign Language Option 73
Foreign Language Placement
Procedures 78
Foreign Languages,
Department of 124-132
Course Descriptions 126-132
Curriculum Outline 125
Laboratory and Practicum 124
Placement 124
Summer Scholarships 124
Teacher Certification 124
Translating 126
Forest Resources 353
Former Students, Readmission of 36
49er Times 24
Forum Council 27
Foundation of UNCC 23
Fraternities 25
French, Course Descriptions 127-128
Major in 127
Freshman English Placement
Procedures 78
Friends of UNCC 22

—G—

GED 33
General Alumni Association 22-23
General Education Requirements for all
Baccalaureate Degrees 70-72
General Information 8
Geography and Earth Sciences,
Department of 133-140
B.A. in 133
B.S. in 133-134
Graduate Course Descriptions ... 136-137,
139-140
M.A. in 134
Undergraduate Course
Descriptions 135-137, 138-140
German
Graduate Course Descriptions ... 129-130
Major in 128
Undergraduate Course
Descriptions 129-130
Goals Statement 9
Goals of UNCC Education 9, 70
Government, Student Body 23
Governors, Board of
(UNC System) 368
Grade Changes 63
Grade Point Average 64
Grade Point Requirements 70
Grade Reports 62
Grades 63
Grading Policies 63-64
Graduate Admission 37-43
Graduate Assistantships 54
Graduate Degree Requirements 74-75
Graduate Degrees 31
Graduate Fellowships 54
Graduation Fee 50
Graduation with Distinction 69
Graham, Frank Porter Professorship ... 358
Grants, Faculty 21
Grants, Student 53-54
Greek Organizations 25
Gymnasium 16

—H—

Handicapped Services 17
Handicapped, Vocationally 54
Health and Physical Education,
Department of 264-268
Course Descriptions 265-268
Health Education 264-265
Health Center 16
History, Department of 141-147
B.A. in 141
Graduate Course Descriptions ... 146-147
M.A. in 141-142
Undergraduate Course
Descriptions 143-147
History of the University 8
History of the University System 367
Honoraries 26
Honors, Academic 26-27, 69
Honors and Awards 26-27
Honors Program 346-349
In Biology 347
In Chemistry 103, 347
In English 348
In History 348
Interdisciplinary 148, 347
In Mathematics 150, 348
In Psychology 349
Housing (See Residence Halls)
Housing, Cost of 49
Housing Deposit 50
Housing Refunds 52
Human Services, Department of ... 269-275
B.A. in 269-270
Certificate of Advanced Study in 271
Course Descriptions 272-275
Graduate Programs in 270-271
Master's Degree in 270-271
Undergraduate Programs in 269-270

—I—

Incomplete, Grade of 63
Infirmary (See Health Center)
Information, General 8

Institute, Urban 20-21
Inter-Institutional Registration 62, 349
Intermediate Education 247, 249, 250
International Campus Programming 19, 351
International Student Exchange 345
International Student Services 19
International Studies, Center for 19-20
International Studies, Concentration in 350-351
Internships 346
Intramural Sports 16

—J—

Journalism 353
Judiciary, Student 23

—K—

Kerley, Artie Sue Professorship in Nursing 358

—L—

Late Registration 60
Late Registration Fee 50
Law 353
Law Enforcement (See Criminal Justice)
Leadership Development, Student 24
Learning Assistance Services 13
Legislature, Student 23
Library 12
Library Science, Course Descriptions 259
Loans 53

—M—

Magazine, Literary 24
Major, Change of 62
Second 68
Marshals, Commencement 69
Master of Arts, Admission to 38, 39-43
English 39
Geography 40
History 40
Mathematics 40
Mathematics Education 40-41
Psychology 41
Sociology 41
Master of Business Administration 221-223
Admission to 42
Master of Education 249-250
Master of Human Development and Learning 270-271
Admission to 42
Master of Science, Admission to 38-39
Biology 41
Chemistry 41
Criminal Justice 41
Engineering 42
Nursing 42-43
Master of Urban Administration 179-180
Admission to 43
Master's Degree, Second 68
Mathematics, Department of 149-161
Baccalaureate Degrees 149
Curriculum Outlines 152-154
Graduate Course Descriptions 157-161
Honors Program 150
Master's Degrees 150-151
Undergraduate Course Descriptions 155-158
Mathematics Option 73
Mathematics Placement Procedures 78
Meal Plans 17-18, 49
Mechanical Engineering and Engineering Science, Department of 302-309
Course Descriptions 304-309
Curriculum Outlines 303
Media Board, Student 24
Media Services 12
Medical Care 16
Medical Technology 95, 102
Medicine 353
Middle Grades Education 248, 250
Military Science Area (Army ROTC) 279-280
Minimum Hours, Graduate 75
Minority Presence Grant Program 54
Morrison Scholarships 55
Motor Vehicle Registration Fees 50-51
Music (See Performing Arts)

—N—

National Student Exchange Program 344-345
NCNB Awards 358
New Student Fee 50
Newspaper, Student 24
Non-Degree Students, Admission of 37
Non-Matriculation, Graduate 37
North Carolina Minority Presence Grant Program 54
North Carolina Scholars 34
Nursing, College of 334-343
Admission to 34, 35
B.S. in 335-336
Course Descriptions 340-343
Curriculum Outline 337
M.S. in 339-340
Pathways Option for R.N.'s 338

—O—

Optometry 354
Organizations, Student 25
Out-of-State Students, Tuition and Fees for 49

—P—

Parking 50-51
Pass-No Credit Option 64
Patrons of Excellence 23
Pell Grants 53
Penalties for Parking Violations 51
Performing Arts,
  Department of 162-172
  Bachelor's Degree 162-164
  Course Descriptions
    Creative Arts 168
    Dance 168-169
    Music 169-171
    Theatre 171-172
  Curriculum Outlines 165-167
Pharmacy 354
Philosophy, Department of 173-175
  Course Descriptions 173-175
  Requirements for Major 173
Physical Education 264-268
Physician 16
Physics, Department of 176-178
  B.A. in 176
  B.S. in 176
  Course Descriptions 176-178
Piedmont Waste Exchange 21
Placement Examinations 78
Placement Office 15
Plagiarism 362
Police Services 16-17
Political Science, Department of ... 179-186
  B.A. in 179
  Course Descriptions 180-186
  Master of Urban
    Administration 179-180
Post-Baccalaureate Students 37-38
Practica 346
Pre-Dental Preparation 353
Pre-Medical Preparation 353
Privacy of Student Educational
  Records 10-11
Probation, Academic 65
Professional Education Sequence ... 245-249
Professional Schools,
  Preparation for 352-355
Professorships 358
Program Approval, Graduate 74
Program Board, University 24
Prospector, The 24
Psychology, Department of 187-195
  B.A. in 187
  Curriculum Outlines 188
  Graduate Course Descriptions ... 193-195
  M.A. in 189-190
  Undergraduate Course
    Descriptions 190-193
Public Safety, Department of 16-17
Public Service, Research and 18-22
Publications, Student 24
Purpose Statement 8

—R—

Radio Station 21
Rathskeller 14
Reading, Course Descriptions 256-257
Reading Education 250
Readmission After Suspension
  or Termination 66
Readmission of Former Students 36
Readmission of Graduate Students 38
Records, Privacy of 10-11
Records, Transcripts of 65
Refunds 51-52
Regional Information System 20
Registration 60-62
Regulations, Academic 59-75
Regulation of Student
  Conduct 361-363
Religious Affairs 27
Religious Studies, Department of ... 196-198
  Requirements for Major 196
  Course Descriptions 196-198
Renewal of Financial Aid 53
Repeating a Course 64
Research and Public Service 18-22
Research, Faculty 20
Residence Halls 14
Residence Requirements
  for Degree 69-70, 74
Residency Status for Tuition
  Payment 47-48
Responsibility, Student 362-363
Returned Check Policy 46
Rifle 21-22
Room and Board, Cost of 49
ROTC Programs 276-280, 351
Russian, Course Descriptions 130

—S—

Safety 16-17
Sanskrit Magazine 24
Scholarships 55-57, 124, 359
Second Baccalaureate Degree 36, 68
Second Master's Degree 68
Secondary Education 249, 251
Security 16-17
Senior Citizens, Admission of 36
Service Learning Internships 346
Services, University 12-23
Sixth Year Programs 250-251, 261, 271
Social Work 199, 202
Sociology and Anthropology,
  Department of 199-210
  B.A. in Anthropology 199-200
  Curriculum Outlines 200-202
  Graduate Course Descriptions
    Anthropology 206-207
    Sociology 208-210
  Master of Arts in Sociology 203-204

Undergraduate Course Descriptions
Anthropology 205-206
Sociology 207-210
Social Work 207
Soccer 21-22
Softball 21-22
Sororities 25
Spanish, Major in 130
Graduate Course Descriptions 132
Undergraduate Course Descriptions 131-132
Special Assessments 50
Special Education 250, 251
Course Descriptions 257-259
Special Programs 344-355
Speech 211
Sports, Intercollegiate 21-22
Intramural 16
Stone, Charles H. Fund 358
Student Activities 23-27
Student Activities Fee 50
Student Affairs 14-16
Student Body Government 23
Student Leadership Development 24
Student Media Board 24
Student Responsibility 60, 362-363
Student Teaching 249
Study Abroad 19, 350-351
Summer Courses 10
Supplemental Educational Opportunity Grant 54
Suspension, Readmission After 66
Swimming 21-22

—T—

Teacher Certification 68, 243-244
Teaching English as a Second Language 250
Teleconferencing Service 21
Temporary Parking Permits 51
Tennis 21-22
Termination, Readmission After 66
Theatre (See Performing Arts)
Time Limit (Graduate) 75
Traffic Division 17
Transcripts of Records 65
Transfer Students, Admission of 34-35
Credit 66-68
Transient Students, Admission of 37
Study 67-68
Transit System 17
Translating, Concentration in 126
Travel Abroad 19, 350-351
Trustees, Board of 369
Tuition and Fees 49

—U—

UNCC Foundation 23
UNCC Grants 54
Unclassified Students, Graduate 38
Undergraduate Degrees 30
University Center 14
University Forum Council 27
University/Industry Cooperative Programs 21
University Program Board 24
University Regulation of Student Conduct 362-363
Urban Administration, Master of 179-180
Urban Institute 20-21

—V—

Vending Machines 18
Venture Program 352
Veterans Benefits 54
Veterans, Children of 54-55
Veterinary Medicine 354-355
Violation of University Policy or Regulations 361-363
Violations, Parking 51
Visiting Students, Admission of 37, 38
Visual Arts, Department of 212-218
Course Descriptions 215-218
Curriculum Outlines 214
Vocationally Handicapped, Education for 54
Volleyball 21-22

—W—

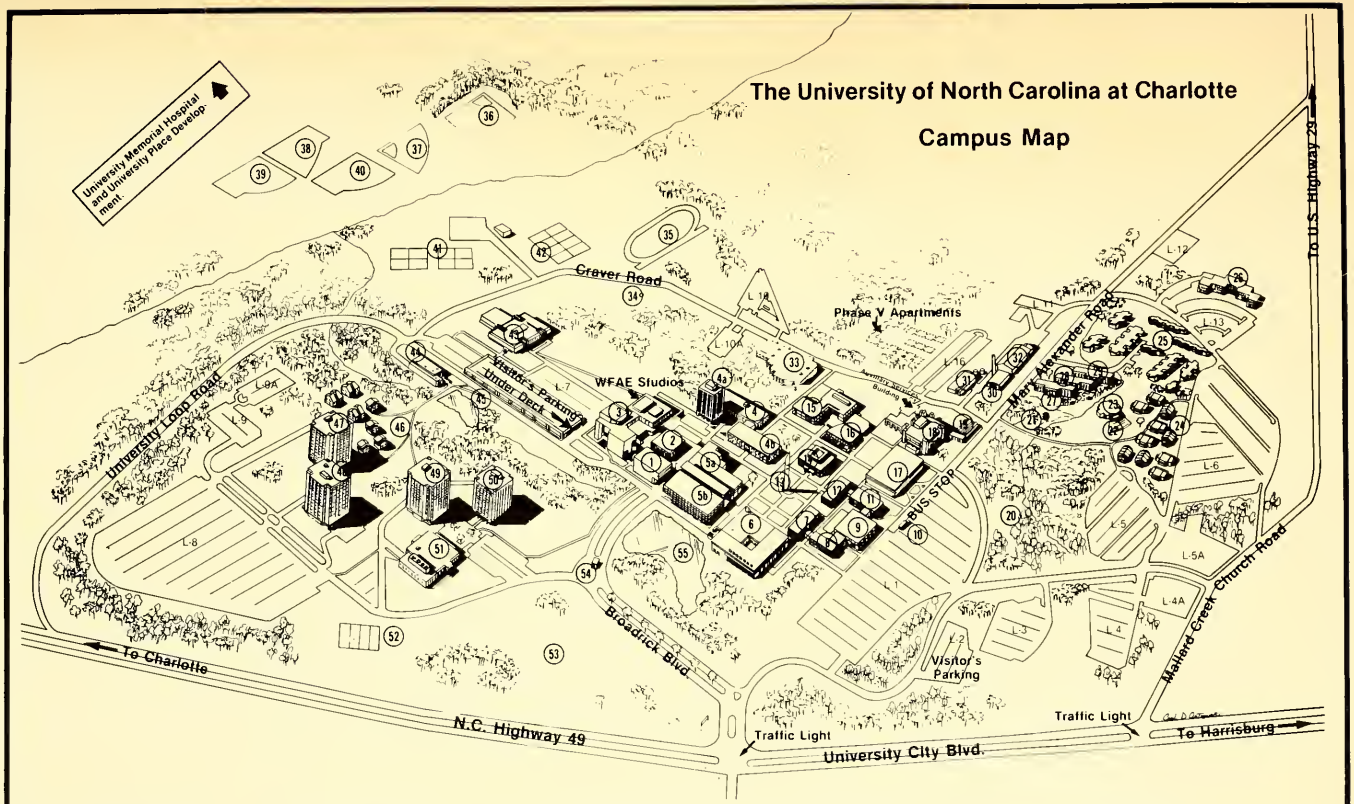
Weapons 362
WFAE-FM 21
Withdrawal 61, 64
Women's Studies 219, 352
Writing Resources Center 13

—Y—

Yearbook 24

The University of North Carolina at Charlotte

Campus Map

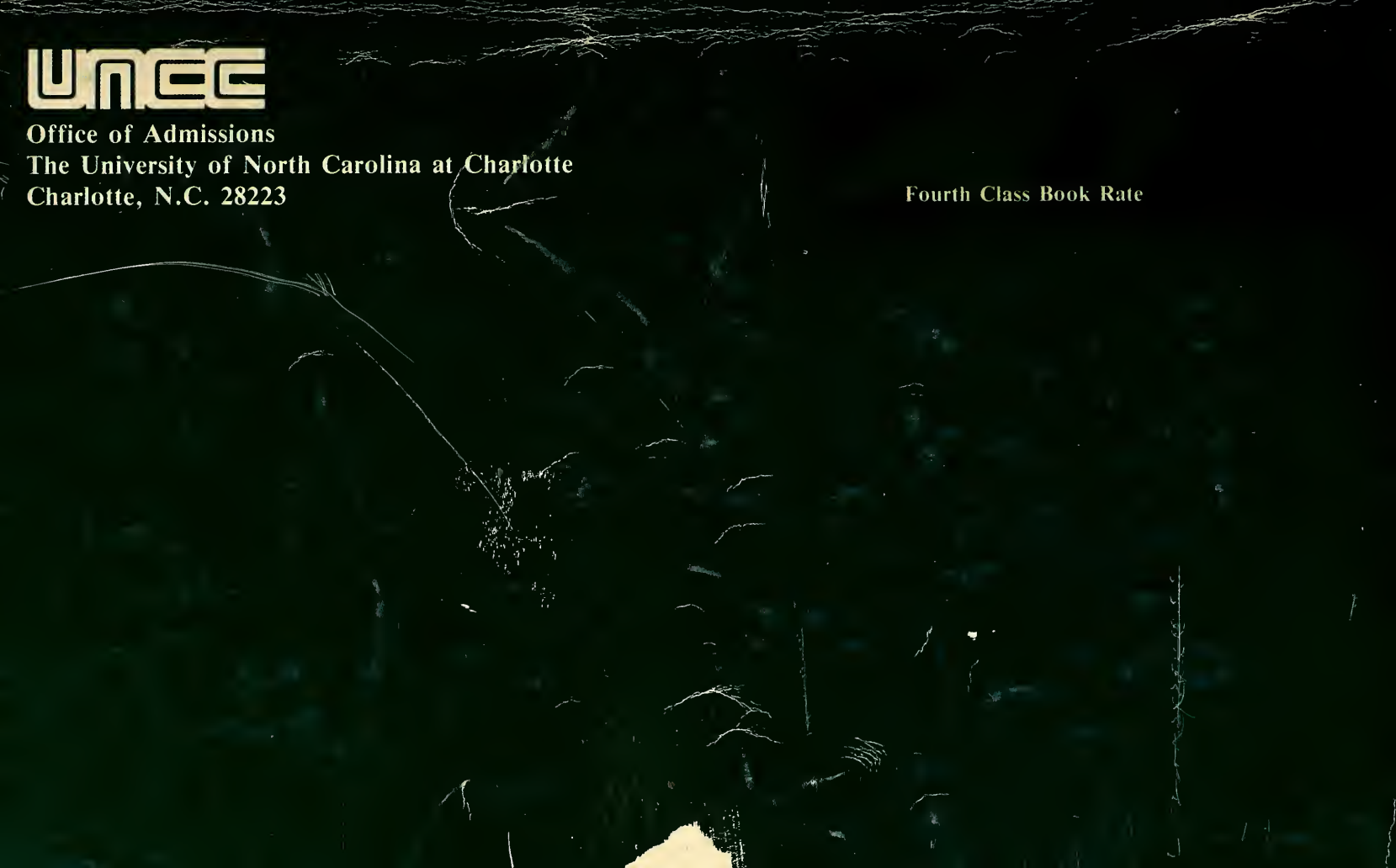


KEY TO CAMPUS FACILITIES

1. Reese Administration Building
2. A.K. King Building
3. Cone University Center
4. Atkins Library
4a. Dalton Library Tower
4b Atkins Building
5a Colvard Building North
5b Colvard Building South
6 Rowe Building
7. Winningham Building
8 Garinger Building
9 Denny Building
10 Automated Bank Teller
11. Barnard Building
12 Macy Building
13 Belk Tower
14 W.A. Kennedy Building
15 Smith Building
16 Bookstore Building
17 Friday Building
18 McEniry Building
19 McMillan Greenhouse
20 Van Landingham Glen
21 Susie Harwood Garden
22 Amphitheater
23. Cafeteria/Activities Building
24 Phase II Apartments (H O)
25 Phase III Apartments (R Z)
26 Hawthorn Residence Hall
27 Cedar Residence Hall
28 Hickory Residence Hall
29 Sycamore Residence Hall
30 Steam Plant
31 Physical Plant Building
32 Receiving Warehouse
33 Physical Sciences Building
34 WFAE Satellite Dish
35 Soccer Field and Track
36 Baseball Field
37 Softball Field
38 Intramural Field
39 Intramural Field
40 Intramural Field
41 Tennis Courts
42 Tennis Courts
43 Physical Education and Athletics Building
44 Brocker Health Center
45 Davis Memorial Park
46 Hunt Village (A G)
47 Holshouser Residence Hall
48 Scott Residence Hall
49 Moore Residence Hall
50 Sanford Residence Hall
51 Residence Hall Cafeteria
52 Tennis Courts
53 Intramural Fields
54 Information Booth
55 Hechenbleikner Lake

UNIVERSITY PARKING LOTS

L 1, L 2, L 3, L 4, L 4A, L 5, L 5A, L 6, L 7, L 8, L 9, L 9A, L 10, L 10A, L 11, L 12, L 13, L 16

Office of Admissions
The University of North Carolina at Charlotte
Charlotte, N.C. 28223

Fourth Class Book Rate